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BULLETIN No. 59.

U. S. DEPARTMENT OF AGRICULTURE,

OFFICE OF EXPERIMENT STATIONS.



XIV — 3  
ORGANIZATION LISTS

OF THE

Agricultural Colleges and Experiment Stations

IN THE

UNITED STATES,

WITH A LIST OF AGRICULTURAL EXPERIMENT STATIONS  
IN FOREIGN COUNTRIES.



JANUARY, 1899.

WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
1899.

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U. S. DEPARTMENT OF AGRICULTURE,  
OFFICE OF EXPERIMENT STATIONS.

ORGANIZATION LISTS

OF THE

Agricultural Colleges and Experiment Stations

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LETTER OF TRANSMITTAL.

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UNITED STATES DEPARTMENT OF AGRICULTURE,  
OFFICE OF EXPERIMENT STATIONS,  
*Washington, D. C., January 1, 1899.*

SIR: I have the honor to transmit herewith manuscript of a bulletin containing the organization list of agricultural colleges and experiment stations, a subject list of publications of the experiment stations received by this Office during 1898, the Federal legislation relating to the colleges and stations, and the rulings of the Post-Office, Treasury, and Agricultural Departments as to the construction of the act of Congress of March 2, 1887, establishing the stations. There has also been added a list of agricultural experiment stations and kindred institutions in foreign countries compiled from various sources. The matter has been compiled under my direction by Miss S. L. Sommers, of this Office, and I recommend its publication as Bulletin No. 59 of this Office.

A. C. TRUE,  
*Director.*

Hon. JAMES WILSON,  
*Secretary of Agriculture.*

## LIST OF ABBREVIATIONS.

<i>Agr.</i> , Agriculture, Agriculturist, Agricultural.	<i>Lang.</i> , Language, Languages.
<i>Anal.</i> , Analytical.	<i>Libr.</i> , Library, Librarian.
<i>Anat.</i> , Anatomy.	<i>Lit.</i> , Literature.
<i>Arbor.</i> , Arboriculture, Arboriculturist.	<i>Math.</i> , Mathematics.
<i>Arch.</i> , Architecture.	<i>Mech.</i> , Mechanics, Mechanical.
<i>Arith.</i> , Arithmetic.	<i>Met.</i> , Meteorology, Meteorologist.
<i>Assoc.</i> , Associate.	<i>Mil.</i> , Military.
<i>Asst.</i> , Assistant.	<i>Min.</i> , Mineralogist, Mineralogy.
<i>Astron.</i> , Astronomy.	<i>Myc.</i> , Mycology, Mycologist.
<i>Bact.</i> , Bacteriology, Bacteriologist.	<i>Path.</i> , Pathology, Pathologist.
<i>Biol.</i> , Biology, Biologist, Biological.	<i>Pedag.</i> , Pedagogics, Pedagogy.
<i>Bot.</i> , Botany, Botanist, Botanical.	<i>Philos.</i> , Philosophy.
<i>Chair.</i> , Chairman.	<i>Phys.</i> , Physics, Physicist, Physical.
<i>Chem.</i> , Chemist, Chemistry, Chemical.	<i>Physiol.</i> , Physiology, Physiological, Physiologist.
<i>Dept.</i> , Department.	<i>Polit.</i> , Political.
<i>Dir.</i> , Director.	<i>Pract.</i> , Practical, Practice.
<i>Econ.</i> , Economy, Economic, Economics.	<i>Prep.</i> , Preparatory.
<i>Elect.</i> , Electrical, Electricity.	<i>Pres.</i> , President.
<i>Engin.</i> , Engineer, Engineering.	<i>Prin.</i> , Principal.
<i>Engl.</i> , English.	<i>Psych.</i> , Psychology.
<i>Ent.</i> , Entomology, Entomologist.	<i>Rhet.</i> , Rhetoric.
<i>Expt.</i> , Experiment, Experimental.	<i>Sci.</i> , Science.
<i>For.</i> , Forestry.	<i>Sec.</i> , Secretary.
<i>Geol.</i> , Geology, Geologist, Geological.	<i>Sta.</i> , Station.
<i>Geog.</i> , Geography.	<i>Sten.</i> , Stenographer, Stenography.
<i>Gov.</i> , Governor.	<i>Supt.</i> , Superintendent.
<i>Hist.</i> , History.	<i>Treas.</i> , Treasurer.
<i>Hort.</i> , Horticulture, Horticulturist.	<i>Univ.</i> , University.
<i>Husb.</i> , Husbandry.	<i>V. Dir.</i> , Vice Director.
<i>Indus.</i> , Industrial, Industries, Industry.	<i>Vet.</i> , Veterinary, Veterinarian.
<i>Instr.</i> , Instructor.	<i>Vit.</i> , Viticulture, Viticulturist.
<i>Irrig.</i> , Irrigation.	<i>Zool.</i> , Zoology, Zoologist.
<i>Lab.</i> , Laboratory.	

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## INSTITUTIONS WITH COURSES IN AGRICULTURE.

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#### Agricultural and Mechanical College of Alabama, Auburn.

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The courses of study are seven. Five of these require four years each for completion, and lead to the degree of B. S.: Course in chemistry and agriculture, course in mechanics and civil engineering, course in electrical and mechanical engineering, course in pharmacy, and general course. The two remaining courses require two years each, and lead to a certificate: Two years' course in agriculture and two years' course in mechanic arts.

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<i>macy.</i>	

#### Agricultural and Mechanical College for Negroes, Normal.

##### COURSES OF STUDY.

The college is divided into two departments, literary and industrial. The courses requiring four years for completion are as follows: Scientific, agricultural, and mechanical. Courses covering from one to three years are given in a number of different industrial and literary subjects.



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## ARIZONA.

## University of Arizona, Tucson.

## COURSES OF STUDY.

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## ARKANSAS.

## Arkansas Industrial University, Fayetteville.

## COURSES OF STUDY.

The university offers the following courses in the departments at Fayetteville: Three in engineering, leading to the degrees of B. M. E., B. C. E., and B. E. E.; seven in science, leading to the degree of B. S., with one of the following subjects as a specialty, viz, chemistry, zoology, geology, mathematics, economics, agriculture, and horticulture; eight in liberal arts, leading to the degree of B. A., with one of the

following subjects as a specialty, viz, ancient languages, modern languages, mathematics, history, economics, chemistry, zoology, and geology; three short courses without degree, students in which at the end of the sophomore year may change to one leading to one of the above degrees, viz, normal, mechanical engineering, and electrical engineering courses. There are also graduate courses. In addition to the above, the medical department and the law department, both at Little Rock, have courses of study leading to the degrees of M. D. and B. L., respectively.

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#### COURSE OF STUDY.

The course of study requires four years for completion and leads to the degree of B. S.

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## COLORADO.

The State Agricultural College of Colorado, Fort Collins.

## COURSES OF STUDY.

The courses of study are four, each requiring four years in addition to two years of preparatory work and each leading to the degree of B. S.: The agricultural course, the mechanical engineering course, the irrigation and civil engineering course, and the ladies' course. Provision is made for post-graduate work. The degrees of C. E. and M. E. are conferred upon those worthy of holding them, by faculty action approved by the governing board. A commercial course, covering a period of two years, is established, entrance to which requires the same qualifications as for admission to the freshman class; no degree is given.



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## CONNECTICUT.

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## COURSE OF STUDY.

The course of study requires four years for completion and leads to a degree.

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## DELAWARE.

Delaware College, Newark.

## COURSES OF STUDY.

The courses of study are seven in number and require four years each for completion: The classical course and the Latin scientific course, each leading to the degree of B. A.; the agricultural and the general science courses, each leading to the degree of B. S.; three courses in engineering, leading to the degrees of B. C. E., B. M. E., and B. E. E. There are also a two years' course and a short winter course of thirteen weeks in agriculture.



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State College for Colored Students, *Dover.*

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## COURSES OF STUDY.

Besides a preparatory department there are three equivalent collegiate courses of study, each requiring four years for completion: The agricultural course, leading to the degree of B. S.; the mechanical course, leading to the degree of B. S.; the Latin scientific course, leading to the degree of B. A.

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## GEORGIA.

### Georgia State College of Agriculture and Mechanic Arts, Athens.

### COURSES OF STUDY.

There are two courses of study, requiring four years each for completion and leading to the degrees of B. S. and B. E.; one three years' course, leading to the degree of B. Agr.; graduate courses of one year each, leading to degrees of M. S., C. E., and M. Agr.; special courses in chemistry, mining, and metallurgy, in agriculture, in electrical engineering, and in building and architecture, in which certificates of attainment are given. There is also a short winter course in agriculture, comprising instruction in the English branches, agriculture, and dairying.

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The regular course in agriculture requires four years for its completion and leads to the degree of B. Agr.

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## ILLINOIS.

College of Agriculture of the University of Illinois, Urbana.

## COURSE OF STUDY.

The regular course requires four years for completion and leads to the degree of B. S. The winter school in agriculture begins in January and continues eight weeks. Provision is also made for special students.

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Edgar J. Townsend, Ph. D., <i>Math.</i>	George T. Kemp, Ph. D., M. D., <i>Physiol.</i>
Everts B. Greene, Ph. D., <i>Hist.</i>	Frank Smith, M. A., <i>Zool.</i>
Violet D. Jayne, Ph. D., <i>Engl.</i>	Perry G. Holden, M. S., <i>Agr. Phys.</i>
John P. Hyman, Ph. D., <i>Psych.</i>	Neil C. Brooks, Ph. D., <i>German</i> .
William H. Vandervoort, M. E., <i>Mech. Engin.</i>	Agnes S. Cook, B. A., <i>Rhet.</i>
Harry S. Grindley, D. Sc., <i>Chem.</i>	Oscar Quick, M. A., <i>Phys.</i>
T. A. Clark, B. L., <i>Rhet.</i>	Stanley M. Lewis, <i>Art and Design</i> .
Herman S. Piatt, Ph. D., <i>Romanic Lang.</i>	Wilbur J. Fraser, B. S., <i>Dairying</i> .
Arthur H. Daniels, Ph. D., <i>Philos.</i>	Joseph C. Blair, <i>Hort.</i>
Charles W. Tooke, M. A., <i>Polit. Sci.</i>	Chas. W. Young, B. S., <i>Bot.</i>
	Albert R. Curtiss, <i>Woodworking</i> .
	Henry Jones, <i>Blacksmith</i> .

## INDIANA.

School of Agriculture, Horticulture, and Veterinary Science of Purdue University, Lafayette.

## COURSE OF STUDY.

The course of study requires four years to complete and leads to the degree of B. S.

BOARD OF INSTRUCTION.<sup>1</sup>

James Henry Smart, M. A., LL. D., <i>Pres. Univ.</i>	Arvill Wayne Bitting, B. S., D. V. M., <i>Vet. Sci.</i>
William Carroll Latta, M. S., <i>Agr.</i>	Stanley Coulter, M. A., Ph. D., <i>Biol.</i>
Charles Sumner Plumb, B. S., <i>Animal Indus. and Dairying</i> .	Joseph Charles Arthur, D. Sc., <i>Vegetable Physiol. and Path.</i>
James Troop, M. S., <i>Hort. and Ent.</i>	Winthrop Ellsworth Stone, Ph. D., <i>Chem.</i>

<sup>1</sup> This list does not include the instructors exclusively engaged in the schools of Engineering, Science, and Pharmacy.

## BOARD OF INSTRUCTION—continued.

Percy Norton Evans, B. S., PH. D., ( <i>Assoc.</i> ) <i>Chem.</i>	Katherine Eliza Golden, M. S., <i>Instr. Biol.</i>
Henry Augustus Huston, M. A., A. C., <i>Agr.</i> <i>Chem.</i>	William Henry Test, M. S., <i>Instr. Chem.</i>
Alexander Wilmer Duff, M. A., B. S., <i>Phys.</i>	Severance Burrage, B. S., <i>Instr. Sanitary</i> <i>Sci.</i>
Emma Montgomery McRae, M. A., <i>Engl.</i> <i>Lit.</i>	Samuel Newton Taylor, PH. D., <i>Instr.</i> <i>Phys.</i>
Thomas Francis Moran, PH. D., <i>Hist. and</i> <i>Polit. Econ.</i>	Alfred M. Kenyon, M. A., PH. D., <i>Instr.</i> <i>Math.</i>
Glen Levin Swiggett, M. A., <i>German and</i> <i>Spanish.</i>	Joakim Reinhard, M. A., ( <i>Assoc.</i> ) <i>German.</i>
Pauline Mariotte-Davies, PH. D., <i>French.</i>	Mary Doan, B. L., M. S., <i>Instr. Engl.</i>
Clarence Abiathar Waldo, PH. D., <i>Math.</i>	James David Hoffman, M. E., <i>Instr. Wood</i> <i>Shop.</i>
Moses Cobb Stevens, M. A., <i>Math.</i>	Charles Bainbridge Peterson, B. C. E., <i>Instr. Mech. Drawing.</i>
Thomas Greene Alford, M. A., <i>Math.</i>	Samuel Morgan, <i>Asst. in Forge Room.</i>
Erastus Test, M. A., M. D., <i>Math.</i>	<sup>1</sup> Matt. R. Peterson, U. S. A., 1st Lieut., 6th Infantry, <i>Mil. Sci.</i>
Laura Anne Fry, <i>Indus. Art.</i>	Frank Homer Curtiss, <i>Phys. Dir.</i>
Anne Embree Baker, B. S., <i>Instr. Wood</i> <i>Carving.</i>	Elizabeth Day Swan, <i>Libr.</i>

## IOWA.

## Iowa State College of Agriculture and Mechanic Arts, Ames.

## COURSES OF STUDY.

The courses of study are eight: The course in agriculture, leading to the degree of B. Agr.; the course in veterinary science, leading to the degree of D. V. M.; the course in mechanical engineering, leading to the degree of B. M. E.; the course in civil engineering, leading to the degree of B. C. E.; the course in electrical engineering, leading to the degree of B. S. in E. E.; the course in mining engineering, leading to the degree of B. M. E.; the course in sciences as related to the industries, leading to the degree of B. S., and the course for ladies, leading to the degree of Ph. D.

The veterinary course requires three years for completion; each of the others four years. There are also a two years' course, a short winter course in agriculture and dairying, and group courses in the sciences.

## BOARD OF INSTRUCTION.

W. M. Beardshear, M. A., LL. D., <i>Pres.</i> ;	Julius Buel Weems, PH. D., <i>Agr. Chem.</i>
<i>Psych. and Ethics.</i>	Wilbert Eugene Harriman, B. S., M. D., <i>Path., Histology, and Therapeutics.</i>
J. L. Budd, M. H., ( <i>Emeritus</i> ) <i>Hort.</i>	Charles F. Curtiss, M. S. AGR., <i>Agr.</i> ;
M. Stalker, M. S., V. S., <i>Vet. Sci.</i>	<i>Dir. Expt. Sta.</i>
John Craig, B. S., <i>Hort.</i>	H. Knapp, B. S. A., <i>Mil. Sci.</i>
Edgar William Stanton, M. S., <i>Math. and</i> <i>Econ. Sci.</i>	Miss Gertrude Coburn, B. S., <i>Domestic</i> <i>Econ.</i>
Alfred Allen Bennett, M. S., <i>Chem.</i>	Louis Bevier Spinney, B. M. E., M. S., <i>Phys. and Elect. Engin.</i>
H. E. Summers, B. S., <i>Zool. and Ent.</i>	Miss Lizzie May Allis, B. A., M. A., <i>French</i> <i>and German.</i>
Louis Hermann Pammel, B. Agr., M. S., <i>Bot.</i>	John A. Craig, B. AGR., <i>Animal Husb.</i>
<sup>1</sup> James Wilson, M. S. A., <i>Dean in Agr.</i>	Axel Kolling, D. V. M., ( <i>Asst.</i> ) <i>Vet. Sci.</i>
Alvin B. Noble, PH. B., <i>Rhet. and Engl. Lit.</i>	Warren H. Meeker, M. E., ( <i>Asst.</i> ) <i>Mech.</i> <i>Engin.</i>
George Welton Bissell, M. E., <i>Mech. Engin.</i>	
Anson Marston, C. E., <i>Civil Engin.</i>	
William Hillis Wynn, PH. D., D. D., <i>Hist.</i>	

<sup>1</sup> On leave.



## BOARD OF INSTRUCTION—continued.

- Samuel Walker Beyer, PH. D., (*Asst.*) *Geol. and Min. Engin.*  
 George Lewis McKay, *Instr. Dairying and Cheese Making.*  
 Mrs. Irving W. Smith, B. S., *Preceptress.*  
 Adrian M. Newens, *Instr. Elocution and Engl.*  
 Frank J. Resler, B. A., *Dir. of Music and Vocalist.*  
 Miss Maria Roberts, B. L., *Instr. Math.*  
 Miss Elmina Wilson, B. C. E., C. E., *Asst. in Civil Engin.*  
 T. Lenox, *Instr. Machine Shops.*  
 Miss Bessie B. Larrabee, B. A., *Instr. Latin and Engl.*  
 Edwin Clarke Bontelle, B. M. E., *Instr. Machine Shops.*  
 Miss Hazel L. Beardshear, B. L., *Asst. in Chem.*  
 E. C. Potter, *Instr. Carpentry.*  
 Miss Lola A. Placeway, B. S., *Instr. Chem.*  
 J. J. Vernon, B. Agr., *Asst. in Hort.*  
 Frank W. Bouska, B. Agr., *Asst. in Dairying.*  
 Clarence Henry Eckles, B. Agr., M. S., *Asst. in Dairy Bact.*  
 Harry J. Titus, D. V. M., *House Surgeon.*  
 Carleton R. Ball, B. S., *Asst. in Bot.*  
 Joseph J. Edgerton, B. S., *Instr. Agr. Phys.: Farm Foreman.*  
 Miss Mand Gardiner, B. S., *Asst. in Domestic Econ.*  
 Robert Combs, PH. G., B. S., *Asst. in Bot*  
 Miss Julia A. Wentch, B. L., *Instr. Math.*  
 James Atkinson, B. S. A., *Asst. in Agr.*  
 Miss Vina E. Clark, *Libr.*  
 Miss Helen Knapp, B. L., (*Asst.*) *Libr.*  
 Mrs. Elizabeth Resler, PH. B., *Instr. Instrumental Music.*  
 Emerson Reed, B. S. in E. E., *Asst. in Elect. Engin.*  
 Robert King, B. S. in E. E., *Asst. in Elect. Engin.*

## KANSAS.

## Kansas State Agricultural College, Manhattan.

## COURSES OF STUDY.

The regular course of study requires four years for completion and leads to the degree of B. S. Special and post graduate courses are also provided. The degree of M. S. is given upon post-graduate study with satisfactory evidence of proficiency after three years in science and industrial arts.

## BOARD OF INSTRUCTION.

- Thomas Elmer Will, M. A., *Pres.: Econ. and Philos.*  
 Henry M. Cottrell, M. S., *Agr.: Supt. Farm.*  
 Albert S. Hitchcock, M. S., *Bot.*  
 Julius T. Willard, M. S., *Applied Chem.*  
 George F. Weida, PH. D., *Pure Chem.*  
 Edward W. Bemis, PH. D., *Econ. Sci.*  
 Duren J. H. Ward, PH. D., *Engl. Lang. and Lit.*  
 Arnold Emch, PH. D., *Graphic Math.*  
 Frank Parsons, B. C. E., *Hist. and Polit. Sci.*  
 ————, *Hort. and Ent.; Supt. Orchards and Gardens.*  
 Miss Minnie A. Stoner, B. S., *Household Econ.; Supt. Domestic Sci. Dept.*  
 John D. Walters, M. S., *Indus. Art and Designing.*  
 Miss Mary F. Winston, PH. D., *Math.*  
 Joseph D. Harper, M. S., *Mech. and Engin.; Supt. Workshops.*  
 ————, *Mil. Sci. and Tactics.*  
 S. N. Chaffee, B. S., *Instr. Prep. Dept.*  
 Alexander B. Brown, M. A., *Music.*  
 Fredric Augustus Metcalf, O. M., *Oratory.*  
 Ernest R. Nichols, D. B., M. A., *Phys.*  
 Paul Fischer, B. Agr., D. V. M., *Vet. Sci.*  
 Charles S. Davis, *Supt. Printing.*  
 Miss Harriet Howell, *Supt. Sewing.*  
 Miss Alice Rupp, *Instr. Engl.*  
 Miss Josephine C. Harper, *Instr. Math.*  
 Miss Helen J. Wescott, *Libr.*  
 William L. House, *Foreman Carpenter Shop.*  
 William H. Moore, B. S., *Foreman Greenhouse.*  
 Miss Charlotte J. Short, M. S., *Asst. in Household Econ.*



## BOARD OF INSTRUCTION—continued.

Miss Lorena M. Helder, M. T., <i>Asst. in Music.</i>	Margaret J. Minis, <i>Asst. Libr.</i>
R. H. Brown, M. T., B. S., <i>Asst. Music.</i>	Mrs. Winnifrede W. Metcalf, <i>Asst. in Oratory.</i>
Enos Harford, <i>Foreman Iron Shop.</i>	Royal S. Kellogg, B. S., <i>General Asst.</i>
Miss O. G. Yenawine, B. S., <i>Asst. in Sewing.</i>	J. Minton Westgate, B. S., <i>General Asst.</i>
R. W. Clothier, B. S., <i>Asst. in Chem.</i>	Charles W. Pape, M. S., <i>Asst. in Vet. Sci. and Biol.</i>
Mrs. Mary L. Hanson, <i>Asst. Household Econ.</i>	J. D. Rickman, <i>Foreman Printing.</i>

## KENTUCKY.

## Agricultural and Mechanical College of Kentucky, Lexington.

## COURSES OF STUDY.

The regular courses of study are eight, each requiring four years for completion: The agricultural course, leading to the degree of B. S.; three scientific courses, leading to the same degree; the classical course, leading to the degree of B. A.; the mechanical engineering course, leading to the degree of M. E.; the civil engineering course, leading to the degree of C. E., and the normal course, leading to the degree of B. Ped. Certificates of proficiency are given to those who do not complete a course undertaken.

## BOARD OF INSTRUCTION.

J. K. Patterson, PH. D., LL. D., <i>Pres.; Metaphysics and Civil Hist.</i>	C. R. Sturdevant, M. E., <i>Elect. Engin.</i>
J. Shackelford, M. A., <i>V. Pres.; Engl. Lang. and Lit.</i>	M. B. Jones, <i>Mil. Sci.</i>
J. G. White, M. A., <i>Math. and Astron.</i>	J. W. Pryor, M. D., <i>Anat. and Physiol.</i>
Paul Wernicke, <i>French and German Lang. and Lit.</i>	W. K. Patterson, M. A., <i>Prin. Academy.</i>
J. H. Neville, M. A., <i>Latin and Greek Lang. and Lit.</i>	J. L. Logan, B. A., <i>Asst. in Academy.</i>
J. H. Kastle, PH. D., <i>Chem.</i>	Milford White, B. S., <i>Asst. in Normal Dept.</i>
R. N. Roark, B. A., <i>Prin. Normal Dept.</i>	R. L. Blanton, M. LIT., <i>Asst. in Greek and Latin.</i>
Arthur M. Miller, M. A., <i>Zool. and Geol.</i>	J. M. Davis, B. A., B. S., <i>Asst. in Academy.</i>
C. W. Mathews, B. S., <i>Agr., Hort., and Bot.</i>	V. E. Muncy, B. S., <i>Asst. in Academy.</i>
J. P. Brooks, C. E., M. A., <i>Civil Engin.</i>	John Theodore Faig, B. M. E., <i>Asst. in Mech. Engin.</i>
M. L. Pence, M. S., <i>Phys.</i>	J. R. Johnson, B. M. E., <i>Asst. in Mech. Engin.</i>
F. Paul Anderson, B. M. E., <i>Mech. Engin.</i>	James Murray, <i>Practical Hort.</i>
	Thos. T. Robinson, <i>Printing.</i>

## The State Normal School for Colored Persons, Frankfort.

## COURSES OF STUDY.

The courses of study are four: A literary course, a course in manual training, a course in science, and a course in agriculture. The school grants State certificates to normal graduates.

## BOARD OF INSTRUCTION.

James E. Givens, B. A., <i>Pres.; Psych., Pedag. and Latin.</i>	Mary E. Jackson, <i>Normal Dept.</i>
W. D. Thomas, B. A., <i>Natural Sci. and Agr.</i>	T. Augustus Reid, <i>Prep. Dept.</i>
Moses A. Davis, <i>Mech. and Manual Training.</i>	Mrs. Mary E. Reed, <i>Sewing.</i>
	Mrs. Julia H. Sayre, <i>Cooking.</i>
	Miss Mattie A. Carr, <i>Matron.</i>
	Thos. T. Robinson, <i>Printing.</i>

## LOUISIANA.

Louisiana State University and Agricultural and Mechanical College, *Baton Rouge*.

## COURSES OF STUDY.

The regular courses of study are seven, each requiring four years for completion: The course in agriculture, the course in sugar cultivation and manufacture, the course in mechanical and civil engineering, the course in mechanics, the general science course, the Latin science course, and the literary course, the first five leading to the degree of B. S., the others to the degree of B. A. A preparatory department, with a course covering one year, is also provided.

## BOARD OF INSTRUCTION.

Thomas D. Boyd, M. A., LL. D., <i>Pres.</i>	D. F. Boyd, LL. D., <i>Philos. and Civics.</i>
James W. Nicholson, M. A., LL. D., <i>Math.</i>	Charles H. Stumberg, M. A., <i>Modern Lang.</i>
William C. Stubbs, PH. D., <i>Agr.</i>	William H. Dalrymple, M. R. C. V. S., <i>Vet. Sci.</i>
H. A. Morgan, B. S. A., <i>Zool. and Ent.</i>	E. A. Chavanne, <i>Mil. Sci. and Tactics.</i>
E. L. Scott, M. A., <i>Ancient Lang.</i>	F. H. Burnette, ( <i>Asst.</i> ) <i>Hort.</i>
B. W. Pegues, <i>Civil Engin.</i>	R. L. Himes, <i>Prin. Subfreshman Dept.</i>
C. A. Smith, M. A., PH. D., <i>Engl.</i>	Carlos V. Cusachs, B. A., B. S., <i>Instr. Engl. and Spanish.</i>
Charles E. Coates, jr., PH. D., <i>Chem.</i>	Carlos V. Cusachs, B. A., B. S., <i>Instr. Engl. and Spanish.</i>
W. R. Dodson, B. A., B. S., <i>Bot.</i>	C. H. Kretz, <i>Instr. Mech.</i>
Thomas W. Atkinson, B. S., C. E., <i>Mech. and Physics.</i>	Alfred Best, B. S., <i>Instr. Chem.</i>

Southern University and Agricultural and Mechanical College, *New Orleans*.

## COURSES OF STUDY.

The courses in agriculture require two and four years for completion, the latter leading to the degree of B. S.

## BOARD OF INSTRUCTION.

H. A. Hill, <i>Pres.; Econ. and Mental Sci.</i>	A. B. Kennedy, <i>Engl.</i>
Hugh Jamieson, <i>Agr.</i>	E. P. Barrell, <i>Chem. and Phys.</i>
Millard Mithoff, <i>Mech.</i>	W. J. Nickerson, <i>Music.</i>
L. M. Martinet, <i>Math.</i>	Chas. E. Roos, <i>Biol. and Dairying.</i>
E. E. Duncan, <i>Prin. Girls' Indus. Section.</i>	

## MAINE.

The University of Maine, *Orono*.

## COURSES OF STUDY.

The undergraduate courses of study leading to degrees are ten, each requiring four years. These are the classical course, the Latin scientific course, the scientific course, the chemical course, the agricultural course, the preparatory medical course, the pharmacy course, the civil engineering course, the mechanical engineering course, and the electrical engineering course. The classical course leads to the degree of B. A., the Latin scientific course to B. Ph., the course in civil engineering to B. C. E., the courses in mechanical and electrical engineering to B. M. E., the other courses to B. S. The shorter courses leading to a certificate are as follows: The courses

of one and two years in agriculture, the course of two years in pharmacy, and the farmers' training courses of six weeks. The course in the school of law is two years in length and leads to the degree of LL. B.

## BOARD OF INSTRUCTION.

Abram W. Harris, D. Sc., <i>Pres.</i>	Wallace S. Elden, M. A., <i>Latin and German.</i>
Merritt C. Fernald, Ph. D., <i>Philos.</i>	Perley Walker, B. M. E., <i>Mech. Engin.</i>
Alfred B. Aubert, M. S., <i>Chem.</i>	Reginald Goodell, B. M. E., <i>Modern Lang.</i>
Allen E. Rogers, M. A., <i>Civics.</i>	Ralph K. Jones, B. S., <i>Libr.</i>
Walter Flint, M. E., <i>Mech. Engin.</i>	Leonard P. Dickinson, B. S., <i>Elect. Engin.</i>
James M. Bartlett, <i>Chem.</i>	Garnett Ryland, Ph. D., <i>Chem.</i>
Lucius H. Merrill, B. S., <i>Agr. Chem.</i>	Harold S. Boardman, B. C. E., <i>Drawing.</i>
Francis L. Harvey, Ph. D., <i>Natural Hist.</i>	Charles P. Weston, B. C. E., <i>Civil Engin.</i>
James N. Hart, C. E., <i>Math. and Astron.</i>	Stanley J. Steward, B. M. E., <i>Shopwork.</i>
Welton M. Munson, M. S., <i>Hort.</i>	Artlinr R. Crathorne, B. S., <i>Math.</i>
Horace M. Estabrooke, M. A., <i>Engl.</i>	Herbert G. Dorsey, M. S., <i>Phys.</i>
James S. Stevens, Ph. D., <i>Phys.</i>	Allen Rogers, B. S., <i>Chem.</i>
Gilbert M. Gowell, M. S., <i>Animal Indus.</i>	Ora W. Knight, B. S., <i>Chem.</i>
Charles D. Woods, B. S., <i>Agr.</i>	Andrew J. Patten, B. S., <i>Chem.</i>
———, <i>Mil. Sci.</i>	Lucius J. Shepard, B. S., <i>Hort.</i>
Fremont L. Russell, B. S., V. S., <i>Biol., Vet. Sci.</i>	Ralph Hamlin, B. C. E., <i>Civil Engin.</i>
Nathan C. Grover, C. E., <i>Civil Engin.</i>	Ray H. Manson, B. M. E., <i>Elect. Engin.</i>
Wilbur F. Jackman, Ph. C., <i>Pharmacy.</i>	Elmer D. Merrill, B. S., <i>Natural Hist.</i>
Howard S. Webb, M. E., <i>Mech. Engin.</i>	Arthur W. Price, B. A., <i>Engl.</i>
Edwin B. Nichols, B. A., <i>Modern Lang.</i>	Leon E. Ryther, B. S., <i>Phys.</i>
	Horace L. White, B. S., <i>Chem.</i>

## MARYLAND.

Maryland Agricultural College, College Park.

## COURSE OF STUDY.

The course of study requires four years and leads to the degrees of B. S., B. A., M. E., and A. M.

## BOARD OF INSTRUCTION.

R. W. Silvester, <i>Pres.</i> ; <i>Math.</i>	Thos. H. Spence, <i>Lang.</i>
R. H. Alvey, B. A., <i>V. Pres.</i> ; <i>Engl. and Civics.</i>	G. Gwinner, M. E., <i>Mech.</i>
Clough Overton, 1st Lieut., 4th Cavalry, U. S. A., <i>Mil. Sci. and Tactics.</i>	Wm. H. Zimmerman, M. S., <i>Photography, Metallurgy, and Electro-Metallurgy.</i>
W. T. L. Taliaferro, B. A., <i>Agr.</i>	S. S. Buckley, B. S., D. V. S., <i>Vet. Sci.</i>
H. B. McDonnell, M. D., B. S., <i>Chem.</i>	H. T. Harrison, <i>Prin. Prep. Dept.</i>
Martin P. Scott, M. D., <i>Natural Hist.</i>	F. P. Veitch, B. S., M. S., <i>Asst. Chem.</i>
W. G. Johnson, M. A., <i>Ent.</i>	W. W. Skinner, B. S., <i>Asst. Chem.</i>
Jas. S. Robinson, <i>Hort.</i>	J. R. Laughlin, B. S., <i>Asst. Chem.</i>
C. O. Townsend, Ph. D., <i>Path. and Bot.</i>	F. B. Bomberger, B. S., <i>Asst. in Engl. and Math.</i>
Henry Lanahan, B. A., <i>Civics and Civil Engin.</i>	J. H. Mitchell, M. S., <i>Asst. in Engin.</i>
	Jos. R. Owens, M. D., <i>Registrar and Treas.</i>

## MASSACHUSETTS.

Massachusetts Agricultural College, Amherst.

## COURSE OF STUDY.

The course of study requires four years and leads to the degree of B. S.

## BOARD OF INSTRUCTION.

- Henry H. Goodell, LL. D., *Pres.*; *Modern Lang.*  
 Levi Stockbridge, (*Honorary*) *Agr.*  
 Chas. A. Goessmann, Ph. D., LL. D., *Chem.*  
 Samuel T. Maynard, B. S., *Hort.*  
 Chas. Wellington, Ph. D., (*Assoc.*) *Chem.*  
 Charles H. Fernald, Ph. D., *Zool.*  
 Rev. Charles S. Walker, Ph. D., *Mental and Polit. Sci.*  
 William P. Brooks, Ph. D., *Agr.*  
 George F. Mills, M. A., *Engl. and Latin.*  
 James B. Paige, D. V. S., *Vet. Sci.*  
 William M. Wright, 1st Lieut., 2d Infantry, U. S. A., *Mil. Sci. and Tactics.*  
 George E. Stone, Ph. D., *Bot.*  
 John E. Ostrander, C. E., *Engin. and Math.*  
 Herman Babson, M. A., *Asst. in Engl.*  
 Edward R. Flint, Ph. D., *Asst. in Chem.*  
 Fred S. Cooley, B. S., *Asst. in Agr.*  
 Richard S. Lull, M. S., *Asst. in Zool.*  
 Ralph E. Smith, B. S., *Instr. German and Bot.*  
 Philip B. Hasbrouck, B. S., *Asst. in Math.*  
 Robert W. Lyman, LL. B., *Lecturer on Farm Law.*

## MICHIGAN.

Michigan Agricultural College, *Agricultural College.*

## COURSES OF STUDY.

The courses of study are three, each requiring four years for completion and leading to the degree of B. S.: The agricultural course, the mechanical course, and the women's course. A post-graduate course is also provided.

## BOARD OF INSTRUCTION.

- J. L. Snyder, M. A., Ph. D., *Pres.*  
 R. C. Kedzie, M. A., M. D., D. Sc., *Chem.*; *Curator Chem. Lab.*  
 William J. Beal, M. S., Ph. D., *Bot. and For.*; *Curator Bot. Museum.*  
 Levi R. Taft, M. S., *Hort. and Landscape Gardening*; *Supt. Hort. Dept.*  
 Howard Edwards, M. A., LL. D., *Engl. Lit. and Modern Lang.*  
 Herman K. Vedder, C. E., *Math.*  
 I. H. Butterfield, *Sec.*  
 C. D. Smith, M. S., *Agr.*; *Supt. Farm.*  
 C. L. Weil, B. S., *Mech. Engin.*  
 W. B. Barrows, B. S., *Zool. and Physiol.*; *Curator General Museum.*  
 Frank S. Kedzie, M. S., (*Adjunct*) *Chem.*  
 George A. Waterman, M. S., V. S., *Vet. Sci.*  
 William S. Holdsworth, M. S., (*Asst.*) *Drawing.*  
 P. B. Woodworth, B. S., M. E., (*Asst.*) *Phys.*  
 C. F. Wheeler, B. S., (*Asst.*) *Bot.*  
 W. O. Hedrick, M. S., (*Asst.*) *Hist. and Polit. Econ.*  
 Maud Ryland Keller, M. A., *Dean of Woman's Dept.*  
 Georgiana Blunt, Ph. M., (*Asst.*) *Engl. Lit. and Modern Lang.*  
 Warren Babcock, jr., B. S., (*Asst.*) *Math.*  
 Mrs. Linda E. Landon, *Libr.*  
 H. W. Mumford, B. S., (*Asst.*) *Agr.*  
 R. H. Pettit, B. S., *Instr. Zool.*  
 A. L. Westcott, B. M. E., *Instr. Mech. Engin.*  
 D. J. Crosby, B. S., *Instr. Engl.*  
 M. W. Fulton, B. S., *Instr. Agr.*  
 B. O. Longyear, *Instr. Bot.*  
 William O. Beal, B. A., *Instr. Math.*  
 G. H. True, B. S., *Instr. Dairying.*  
 C. E. Marshall, Ph. B., (*Asst.*) *Bact.*  
 H. E. Smith, B. S., *Instr. Mech. Engin.*  
 Mrs. Jennie K. L. Hauer, *Instr. Sewing.*  
 Ellen R. Rushmore, *Instr. Domestic Sci.*  
 Mrs. Maud Marshall, *Instr. Music.*  
 K. L. Butterfield, B. S., *Supt. Farmers' Institutes and College Field Agent.*  
 Frank V. Warren, B. S., *Instr. Math.*  
 Thomas Gunson, *Foreman Greenhouses.*  
 F. C. Kenney, *Asst. Sec.*  
 Chas. H. Alvord, B. S., *Foreman Farm.*  
 W. S. Leonard, *Foreman Machine Shops.*  
 Chase Newman, *Instr. Mech. Drawing and Woodshop.*  
 W. B. Bradford, *Foreman Woodshop.*  
 C. E. Baker, *Foreman Foundry.*  
 E. S. Good, *Clerk to Pres.*



## MINNESOTA.

College of Agriculture of the University of Minnesota, *St. Anthony Park, St. Paul.*

## COURSE OF STUDY.

The college course requires four years for completion and leads to the degree of B. Agr. Instruction in a number of subjects included in the course in agriculture is given by the faculty of the college in science, literature, and the arts. There is also a secondary school of agriculture, with a course requiring three years of six months each for completion, and a dairy course of four weeks. To secure a dairy certificate the student must have two seasons' actual practice in a creamery or cheese factory, one of which must follow his work at the dairy school.

## BOARD OF INSTRUCTION.

Cyrus Northrop, I.L. D., <i>Pres.</i>	J. M. Drew, <i>Blacksmithing and Poultry.</i>
William M. Liggett, <i>Dean.</i>	William Boss, <i>Carpentry and Power Machinery.</i>
Henry Webb Brewster, Ph. D., <i>Prin. of School; Math.</i>	Alvin D. Gaines, M. A., <i>Lang., Civics, and Music.</i>
Samuel B. Green, B. S., <i>Hort. and For.</i>	Harry A. Leonhauser, Lieut., U. S. A., <i>Mil. Drill.</i>
Otto Luggen, Ph. D., <i>Zool. and Ent.</i>	E. W. Mahood, M. A., <i>Arith. and Athletics.</i>
Charles R. Aldrich, <i>Carpentry, Drawing, and Farm Buildings.</i>	Juniata L. Shepperd, M. A., <i>Cooking and Laundering.</i>
Florence A. Brewster, <i>Libr.</i>	Margaret Blair, <i>Sewing.</i>
William Robertson, B. S., <i>Phys. and Bot.</i>	Virginia C. Meredith, <i>Preceptress; Household Art and Social Culture.</i>
J. A. Vye, <i>Penmanship and Accounts.</i>	B. D. White, <i>Instr. Butter Making.</i>
Harry Snyder, B. S., <i>Chem.</i>	A. J. Glover, <i>Instr. Cheese Making.</i>
T. L. Hæcker, <i>Dairy Husb.</i>	E. W. Major, <i>Instr. Sweet-Curd Cheese Work.</i>
M. H. Reynolds, M. D., V. M., <i>Physiol. and Vet. Sci.</i>	N. H. Fulton, <i>Asst. in Creamery.</i>
Willet M. Hays, M. S., <i>Agr.</i>	L. R. Hobart, <i>Asst. in Creamery.</i>
Thomas Shaw, <i>Animal Indus.</i>	H. C. Hæcker, <i>Instr. Dairy Lab.</i>
Andrew Boss, <i>Dressing and Curing Meats; Farm Machinery.</i>	

## MISSISSIPPI.

Mississippi Agricultural and Mechanical College, *Agricultural College.*

## COURSES OF STUDY.

The course of study requires four years for completion and leads to the degree of B. S. Post-graduate courses and a preparatory course are also provided.

## BOARD OF INSTRUCTION.

S. D. Lee, LL. D., <i>Pres.</i>	R. C. King, B. S., <i>Sec. and Purchasing Agent.</i>
W. C. Welborn, M. S., <i>Agr.</i>	C. E. Ard, B. S., <i>Instr. Drawing and Carpentry.</i>
A. B. McKay, B. S., <i>Hort.</i>	W. L. Hutchinson, M. S., <i>Dir. Expt. Sta.</i>
A. J. Wiechardt, M. M. E., <i>Mech. Arts.</i>	J. S. Carroll, M. S., <i>Asst. Chem.</i>
G. W. Herrick, B. S., <i>Biol.</i>	E. W. Magruder, B. A., M. S., <i>Asst. Chem.</i>
J. M. White, M. S., <i>Hist., Civics, Psych., and Ethics.</i>	J. C. Robert, D. V. M., <i>Vet. Sci.</i>
F. J. Weddell, B. S., <i>(Asst.) Engl.</i>	B. W. Kilgore, M. S., <i>Chem.</i>
J. L. Stinson, B. S., <i>(Asst.) Prep. Dept.</i>	W. H. Magruder, M. A., <i>Engl.</i>
W. H. Barr, M. D., <i>Surgeon.</i>	B. M. Walker, M. S., <i>Math.</i>



## BOARD OF INSTRUCTION—continued.

J. W. Fox, M. S., ( <i>Assoc.</i> ) <i>Math.</i>	J. F. Montgomery, <i>Foreman Farm.</i>
J. S. Wier, B. S., <i>Instr. Drawing, Blacksmith and Foundry Work.</i>	E. A. Grosvenor, <i>Hospital Nurse.</i>
M. D. King, B. S., <i>Sten.</i>	C. T. Ames, B. S., <i>Asst. Hort.</i>
A. M. Maxwell, <i>Instr. Writing and Book-keeping.</i>	J. C. Herbert, M. S., <i>Prin. Prep. Dept.</i>
W. J. Gallaway, <i>Steward and Janitor.</i>	J. E. McKell, B. S., <i>Asst. Mech. Arts.</i>
	W. F. Hand, M. S., <i>Asst. Chem.</i>
	Miss M. C. McKay, B. S., <i>Libr.</i>
	J. S. Wallace, B. S., ( <i>Asst.</i> ) <i>Prep. Dept.</i>

Alcorn Agricultural and Mechanical College, *Westside.*

## COURSES OF STUDY.

The courses of study are two: The industrial course of five years, and the scientific course, requiring four years for completion and leading to the degree of B. S.

## BOARD OF INSTRUCTION.

Rev. E. H. Triplett, <i>Pres.</i>	A. J. Wade, <i>Instr. Shoemaking.</i>
P. A. Wadlow, B. S., <i>Math.</i>	Rev. J. D. Randolph, <i>Instr. Printing.</i>
P. M. Smith, B. S., ( <i>Asst.</i> ) <i>Math.</i>	Thos. B. Helm, <i>Instr. Blacksmithing.</i>
Henry L. Stiles, B. S., <i>Engl.</i>	———, <i>Instr. Carpentering.</i>
Daniel W. Gary, B. S., ( <i>Asst.</i> ) <i>Engl.</i>	C. A. Gordon, <i>Sec. College.</i>
J. M. May, M. S., <i>Sci.</i>	James N. Beck, M. D., <i>College Physician.</i>
Rev. F. H. Bnnton, <i>Chaplain and Tutor.</i>	Rev. W. H. Jernagin, <i>Steward Boarding Hall.</i>
L. J. Rowan, B. S., ———.	Geo. H. Oliver, ———.
W. R. Wiley, ———.	E. W. Ford, ———.
J. M. Hicks, B. S., <i>Agr. and Supt. Farm.</i>	

## MISSOURI.

College of Agriculture and Mechanic Arts of the University of Missouri,  
*Columbia.*

## COURSES OF STUDY.

The course of study requires four years for completion and leads to the degree of B. Agr. There are also three short courses: A lecture course in agriculture of three months; a school of horticulture of three months, and a two years' elementary course. The college also offers a post-graduate course, which requires two years for completion, and leads to the degree of M. Agr.

## BOARD OF INSTRUCTION.

R. H. Jesse, LL. D., <i>Pres.</i>	P. Kanffman, M. D., <i>Bact. and Path.</i>
H. J. Waters, B. S. A., <i>Dean.</i>	M. L. Lipscomb, M. A., <i>Phys.</i>
P. Schweitzer, Ph. D., LL. D., <i>Agr. Chem.</i>	A. P. Buntington, 1st Lieut., U. S. A., <i>Mil. Sci.</i>
F. B. Mumford, M. S., <i>Agr.</i>	C. F. Marbut, B. S., M. A., <i>Geol. and Min.</i>
J. C. Whitten, B. S., <i>Hort.</i>	C. W. Marx, B. E., <i>Supt. School Mech. Arts.</i>
E. A. Allen, Litt. D., <i>Engl.</i>	W. G. Brown, B. S., Ph. D., <i>Chem.</i>
Howard Ayers, B. S., Ph. D., <i>Biol.</i>	Sidney Calvert, B. S., M. A., <i>Asst. in Chem.</i>
T. J. Rodhouse, B. S., <i>Instr. Drawing.</i>	R. B. Moore, B. S., <i>Instr. Chem.</i>
E. J. Mason, B. S., <i>Instr. Mech. Arts.</i>	J. N. Fellow, M. A., M. S., ———.
M. Estelle Porter, B. L., <i>Instr. Commercial Studies.</i>	H. C. Penn, M. A., <i>Asst. in Engl.</i>
J. W. Connaway, M. D. C., M. D., <i>Vet. Sci.</i>	R. H. Switzler, B. A., <i>Teaching Fellow in Math.</i>
F. C. Hicks, B. A., Ph. D., <i>Polit. Econ.</i>	W. W. Griffith, B. S., <i>Instr. Phys.</i>
J. M. Stedman, B. S., <i>Ent.</i>	C. Thom, B. A., M. A., <i>Instr. Bot.</i>

## MONTANA.

The Montana College of Agriculture and Mechanic Arts, Bozeman.

## COURSES OF STUDY.

The following courses are given: Four-year courses in mechanical engineering, electrical engineering, general science, chemistry, agriculture, and domestic science, leading to degrees, and business and preparatory courses.

## BOARD OF INSTRUCTION.

James Reid, B. A., <i>Pres.</i> ; <i>Mental and Moral Sci., Econ., and International Law.</i>	W. M. Cobleigh, M. E., <i>Asst. in Chem. and Phys.</i>
S. M. Emery, <i>Hort.</i>	Aaron H. Currier, M. A., <i>French and German.</i>
Frank W. Traphagen, PH. D., F. C. S., <i>Phys., Chem., and Geol.</i>	Joseph W. Blankinship, PH. D., <i>Biol. and Bot.</i>
W. H. Williams, B. S., <i>Mech. Engin. and Math.</i>	Miss M. A. Cantwell, <i>Prin. Prep. Dept.</i>
Robert S. Shaw, B. S. A., <i>Irrig. Engin. and Agr.</i>	Miss May Travis, M. A., <i>Asst. in Prep. Dept. and Math.</i>
E. V. Wilcox, PH. D., <i>Bot., Zool., and Ent.</i>	Miss Virginia Corbett, <i>Asst. in Prep. Dept.</i>
Will F. Brewer, B. A., <i>Hist., Latin, and Engl.</i>	E. B. McCormick, B. S., <i>Instr. Mech. Engin.</i>
Mrs. F. E. Marshall, <i>Art.</i>	H. G. Phelps, <i>Business Dept.</i>
Miss Lilla A. Harkins, M. S., <i>Instr. Domestic Sci.</i>	Stella Shaff, <i>Sten. and Typewriting.</i>
	Miss Kate P. Calvin, <i>Piano.</i>

## NEBRASKA.

The Industrial College of The University of Nebraska, Lincoln.

## COURSES OF STUDY.

The groups of study are as follows, each ordinarily requiring four years for completion and leading to the degree of B. S.: General scientific group; general agricultural group; special groups—agriculture and chemistry, botany and agriculture, botany and zoology, chemistry and physics, horticulture and botany, mathematics and physics, zoology and philosophy; and technical groups—technical agriculture, civil engineering, municipal engineering, electrical engineering, steam engineering, and mechanical engineering. One and three year courses in elementary agriculture and a course in dairying are also provided in the school of agriculture.

## BOARD OF INSTRUCTION.

George E. MacLean, PH. D., LL. D., <i>Chancellor.</i>	George H. Morse, B. E. E., <i>Elect. and Steam Engin.</i>
Charles E. Bessey, PH. D., <i>Dean; Bot.</i>	C. F. Ansley, B. A., <i>Engl.</i>
H. W. Caldwell, M. A., <i>American Hist. and Civics.</i>	P. H. Frye, B. A., <i>Engl.</i>
T. Lyttleton Lyon, B. S. A., <i>Agr.</i>	L. A. Sherman, PH. D., <i>Engl. and Engl. Lit.</i>
R. S. Hiltner, M. A., <i>Agr. Chem.</i>	Lawrence Bruner, B. S., <i>Ent.</i>
H. H. Nicholson, M. A., <i>Chem.</i>	F. M. Fling, PH. D., <i>European Hist.</i>
John White, PH. D., <i>Chem.</i>	E. H. Barbour, PH. D., <i>Geol.</i>
Rosa Bouton, M. A., <i>Chem.</i>	Wm. W. Hastings, M. A., PH. D., <i>Hygiene and Dir. Gymnasium.</i>
Samuel Avery, PH. D., <i>Chem.</i>	Laurence Fossler, M. A., <i>Germanic Lang.</i>
O. V. P. Stout, C. E., <i>Civil Engin.</i>	A. Ross Hill, PH. D., <i>Philos.</i>
Morgan Brooks, B. PH., M. E., <i>Elect. and Steam Engin.</i>	Amanda Heppner, M. A., <i>Germanic Lang.</i>
	R. A. Emerson, B. S., <i>(Asst.) Hort.</i>

## BOARD OF INSTRUCTION—continued.

G. E. Barber, M. A., <i>Latin Lang. and Lit.</i>	L. T. More, Ph. D., <i>Phys.</i>
E. W. Davis, Ph. D., <i>Math.</i>	W. G. L. Taylor, LL. B., <i>Polit. and Econ. Sci.</i>
T. M. Hodgman, M. A., <i>Math.</i>	C. R. Richards, M. M. E., <i>Pract. Mech.</i>
A. L. Caudy, Ph. D., <i>Math.</i>	J. C. Hitchman, B. S., <i>Asst. Instr. Mech. Drawing.</i>
G. R. Chatburn, B. C. E., <i>Math. and Civil Engin.</i>	A. H. Edgren, Ph. D., <i>Romance Lang., Sanscrit, and Comparative Philology.</i>
G. D. Swezey, M. A., <i>Met.</i>	Clara Conklin, M. A., <i>Romance Lang.</i>
Charles W. Weeks, B. S., <i>Acting Commandant; Mil. Sci. and Tactics.</i>	H. B. Ward, Ph. D., <i>Zool.</i>
Anne L. Barr, <i>Phys. Training.</i>	R. H. Wolcott, M. D., M. A., <i>Zool.</i>
D. B. Brace, Ph. D., <i>Phys.</i>	J. I. Wyer, jr., B. L. S., <i>Acting Libr.</i>
B. E. Moore, M. A., <i>Phys.</i>	

## NEVADA.

School of Agriculture of the Nevada State University, Reno.

## COURSES OF STUDY.

The regular course requires four years for completion and leads to the degree of B. S. A short course in agriculture is also provided, requiring five months of each year for four years and leading to no degree.

## BOARD OF INSTRUCTION.

Joseph E. Stubbs, M. A., D. D., LL. D., <i>Pres.</i>	F. H. Hillman, M. S., <i>Ent. and Bot.</i>
Hannah K. Clapp, M. A., <i>Instr. in Engl.</i>	Mrs. Mary W. Emery, M. A., <i>Pedag.; Prin. Normal School.</i>
W. McN. Miller, B. S., <i>Anat., Phys., and Geol.</i>	Robert Lewers, <i>Polit. Econ. and Commercial Law.</i>
R. D. Jackson, Ph. B., <i>Mining, Metallurgy, and Assaying.</i>	E. M. Hubbard, 1st Lieut., 7th Artillery, U. S. A., <i>Mil. Sci. and Tactics and Civil Engin.</i>
J. Warne Phillips, D. Sc., <i>Chem. and Phys.</i>	Charles P. Brown, B. S., <i>Drawing and Math.</i>
R. H. McDowell, B. S., <i>Agr. and Hort.</i>	Laura De Laguna, B. A., <i>French, German, and Spanish.</i>
T. W. Cowgill, M. A., <i>Engl.</i>	Anna H. Martin, M. A., <i>Hist.</i>
Richard Brown, <i>Supt. Mech. Dept.</i>	
Henry Thurtell, B. S., <i>Mech. and Math.</i>	
James E. Church, jr., B. A., <i>Latin.</i>	

## NEW HAMPSHIRE.

New Hampshire College of Agriculture and the Mechanic Arts, Durham.

## COURSES OF STUDY.

There are five courses of study, each requiring four years for completion and leading to the degree of B. S.: Course in agriculture, course in chemistry, course in mechanical engineering, course in electrical engineering, and general course (open to women). Also a two years' course in agriculture not leading to any collegiate degree, and a one year's preparatory course.

## BOARD OF INSTRUCTION.

Charles S. Murkland, M. A., Ph. D., <i>Pres.:</i>	Fred W. Morse, B. S., <i>Organic Chem.</i>
<i>Engl. Lang. and Lit.</i>	Charles L. Parsons, B. S., <i>General and Anal. Chem.</i>
Charles H. Pettee, M. A., C. E., <i>Dean;</i>	Clarence M. Weed, D. Sc., <i>Zool. and Ent.</i>
<i>Math. and Civil Engin.</i>	Albert Kingsbury, M. E., <i>Mech. Engin.</i>
Clarence W. Scott, M. A., <i>Hist. and Polit. Econ.</i>	Frank William Rane, B. Agr., M. S., <i>Hort.</i>

## BOARD OF INSTRUCTION—continued.

- <sup>1</sup> Hollis C. Clark, 1st Lieut., 23d U. S. Infantry, *Mil. Sci. and Tactics.*  
 Charles W. Burkett, M. S., (*Assoc.*) *Agr.*  
 Herbert H. Lamson, M. D., *Instr. Bot.*  
 Arthur F. Nesbit, M. A., B. S. *Instr. Phys. and Elect. Engin.*  
<sup>1</sup> Charles H. Kinne, PH. D., *Instr. Modern Lang.*  
 ————, *Instr. Modern Lang.*  
 Joseph H. Hawes, *Instr. Drawing.*  
 Ellis Warren Lazell, PH. D., *Instr. Chem. and Min.*  
 John N. Brown, *Foreman of Machine Work.*  
 ————, *Foreman of Woodwork.*  
 Charles H. Waterhouse, *Instr. Dairying; Supt. of Creamery.*  
 Ewin H. Forristall, B. S., *Asst. in Agr.*  
 Edward E. Russell, *Engin. and Curator of Buildings.*  
 Clement S. Morris, *Purchasing Agent.*

## NEW JERSEY.

Rutgers Scientific School, the New Jersey State College for the Benefit of Agriculture and the Mechanic Arts, New Brunswick.

## COURSES OF STUDY.

There are five distinct courses of study: A course in agriculture, a course in civil engineering and mechanics, a course in chemistry, a course in electricity, and a course in biology. Each course requires four years for completion and leads to the degree of B. S.

## BOARD OF INSTRUCTION.

- Austin Scott, PH. D., LL. D., *Pres.; Hist. and Polit. Sci.*  
 Rev. Jacob Cooper, D. D., D. C. L., LL. D., *Logic and Mental Philos.*  
 Rev. Carl Meyer, D. D., *Modern Lang. and Lit.*  
 Francis Cuyler Van Dyck, PH. D., *Phys. and Expt. Mech.*  
 Edward Albert Bowser, C. E., LL. D., *Math. and Engin.*  
 Rev. Charles Edward Hart, D. D., *Ethics, Evidences of Christianity, and the Engl. Bible.*  
 Louis Bevier, jr., PH. D., *Greek Lang. and Lit.; Sec. Extension Dept.*  
 Edgar Solomon Shumway, PH. D., *Latin Lang. and Lit.*  
 Alfred Alexander Titsworth, M. S., C. E., *Graphics and Math.*  
 Julius Nelson, PH. D., *Biol.*  
 Byron David Halsted, D. Sc., *Bot. and Hort.*  
 John Bernhard Smith, D. Sc., *Ent.*  
 Edward Burnett Voorhees, M. A., *Agr.*  
 Albert Huntington Chester, E. M., PH. D., D. Sc., *Chem. and Min.; Curator Museum.*  
 John Charles Van Dyke, L. H. D., *Hist. Art.*  
 Robert Woodworth Prentiss, M. S., *Math. and Astron.; Sec. of Faculty.*  
 Eliot Robertson Payson, PH. D., *Hist. and Art Teaching.*  
 Edward Luther Stevenson, PH. D., *Hist.*  
 William Cathcart Buttler, 3d U. S. Infantry, *Mil. Sci. and Tactics.*  
 Rev. Henry Du Bois Mulford, *Engl. Lang. and Lit.*  
 Irving Strong Upson, M. A., *Libr. and Registrar.*  
 Clarence Livingston Speyers, PH. B., (*Assoc.*) *Chem.*  
 William Shields Myers, M. S., F. C. S., (*Assoc.*) *Chem.*  
 Edward Livingston Barbour, B. O., *Instr. Rhet. and Elocution*  
<sup>1</sup> Ezra Frederick Scattergood, M. S., *Instr. Math., Elect., and Phys.*  
 Edwin Bell Davis, B. L., *Instr. Modern Lang.*  
 Fred Herbert Dodge, B. A., *Instr. Phys. Training; Dir. Gymnasium.*  
 Francis Cuyler Van Dyck, jr., B. A., *Instr. Math., Elect., and Phys.*

<sup>1</sup> On leave.



## NEW MEXICO.

New Mexico College of Agriculture and Mechanic Arts, Mesilla Park.

## COURSES OF STUDY.

The courses of study are four: A course in agriculture, a course in civil engineering, a course in mechanical engineering, and a scientific course.

## BOARD OF INSTRUCTION.

Cornelius T. Jordan, M. A., <i>Pres.; Polit. Sci.</i>	Frank E. Lester, <i>Instr. Sten. and Typewriting; Libr.; Clerk and Sec. to Faculty.</i>
Clarence T. Hagerty, M. S., <i>Math. and Astron.</i>	R. Fred Hare, M. S., <i>Instr. Chem.</i>
Arthur Goss, M. S., A. C., <i>Chem.</i>	Charles Mills, <i>Instr. College Shops.</i>
Chas. A. Keffler, <i>Agr. and Hort.</i>	Ellen F. Gibson, <i>Instr. Elocution and Phys. Culture; Asst. in Prep. Dept.</i>
Frank W. Brady, M. E., <i>Mech. and Civil Engin.</i>	Joseph F. Bennett, jr., B. S., <i>Instr. Book-keeping.</i>
Ida M. Jones, <i>Spanish.</i>	Fabian Garcia, B. S., <i>Asst. in Agr. and Hort.</i>
T. D. A. Cockerell, <i>Ent.; in Charge of Physiol. and Zool.</i>	Geraldine Combs, <i>Asst. in Prep. Dept.</i>
Hiram Hadley, M. A., <i>Hist. and Pedag.</i>	Ida E. Freeman, <i>Asst. in Prep. Dept.; Matron of the Girls' Dormitory.</i>
Elmer O. Wooton, M. A., <i>Bot., Geol., and Phys.</i>	Du Val Garland Cravens, B. S., <i>Asst. in Engin. Dept.</i>
Frederick F. Barker, LL. B., <i>Engl. and Latin.</i>	Katherine Doughty, <i>Asst. in Prep. Dept.</i>
Ralph Roy Larkin, B. S., <i>Prin. Prep. Dept.; in Charge of Subfreshman Class.</i>	Humboldt Casad, <i>Asst. in Agr. and Hort.</i>
	Elizabeth Wickham, <i>Asst. Libr.</i>
	Helen Mar Macgregor, <i>Asst. College Clerk.</i>

## NEW YORK.

Cornell University, Ithaca.

## COURSES OF STUDY.

Among the numerous courses of study offered by the university is one which leads to the degree of bachelor of the science of agriculture. This course requires four years for completion, and during the last two years the student selects most of his studies in work given by the departments of agriculture and horticulture, and in the courses in agricultural chemistry and economic entomology. Post-graduate courses leading to advanced degrees are provided, and special courses in subjects relating to agriculture are also arranged.

BOARD OF INSTRUCTION.<sup>1</sup>

Jacob Gould Schurman, M. A., D. Sc., LL. D., <i>Pres.</i>	Liberty Hyde Bailey, M. S., <i>General and Expt. Hort.</i>
Isaac Phillips Roberts, M. Agr., <i>Dir. College Agr., Dean Faculty; Agr.</i>	George Francis Atkinson, Ph. B., <i>Bot.</i>
George Chapman Caldwell, B. S., Ph. D., <i>Agr. and General Chem.</i>	Simon Henry Gage, B. S., <i>Anat.</i>
James Law, F. R. C. V. S., <i>Vet. Medicine and Surgery.</i>	Willard Winfield Rowlee, <i>Plant Histology.</i>
John Henry Comstock, B. S., <i>Ent. and General Invertebrate Zoology.</i>	Henry Hiram Wing, M. S., ( <i>Asst.</i> ) <i>Animal Indus. and Dairy Husb.</i>
	Mark Vernon Slingerland, B. S., ( <i>Asst.</i> ) <i>Ent.</i>
	Louis Adelbert Clinton, B. S., ( <i>Asst.</i> ) <i>Agr.</i>

<sup>1</sup>Includes only instructors in subjects directly relating to agriculture. Many other members of the university faculty may give instruction to students pursuing the course leading to the degree of B. S. A.



## BOARD OF INSTRUCTION—continued.

George Walter Cavanaugh, B. S., ( <i>Asst.</i> ) <i>Chem.</i>	Hugh C. Troy, B. S. A., <i>Asst. in Dairy Lab.</i>
Benjamin Minge Duggar, M. S., ( <i>Asst.</i> ) <i>Bot.</i>	John W. Spencer, <i>Deputy Chief Nature Study and Univ. Extension Work.</i>
Alexander Dyer MacGillivray, <i>Asst. in Ent.</i>	Miss Mary Farrand Rogers, B. S., <i>Lecturer in Nature Study and Univ. Extension Work.</i>
George Nieman Lanman, B. S. A., <i>Asst. in Hort.</i>	Abraham L. Knisely, M. S. A., <i>Asst. in Chem.</i>
Walter W. Hall, <i>Asst. in Cheese Making.</i>	Leroy Anderson, M. S. A., <i>Asst. in Dairy Husb.</i>
Webster E. Griffith, <i>Asst. in Butter Making.</i>	Charles E. Hunn, <i>Foreman Garden.</i>
John Lemuel Stone, B. S. A., <i>Asst. in Agr.</i>	Edward Arthur Butler, <i>Clerk and Ac- countant.</i>

## NORTH CAROLINA.

The North Carolina College of Agriculture and Mechanic Arts, West Raleigh.

## COURSES OF STUDY.

The general courses of study are three, each requiring four years for completion: The course in agriculture, the course in engineering and mechanics, and the course in applied science, each leading to the degree of B. S.

## BOARD OF INSTRUCTION.

Alex. Q. Holladay, LL. D., <i>Pres.; Hist.</i>	H. K. Miller, <i>Asst. in Chem.</i>
W. F. Massey, C. E., <i>Hort., Arbor., and Bot.</i>	H. M. Curran, B. S., <i>Asst. in Hort.</i>
W. A. Withers, M. A., <i>Chem.</i>	C. M. Pritchett, M. E., C. E., <i>Instr. Draw- ing and Shop.</i>
D. H. Hill, M. A., <i>Engl.</i>	C. B. Park, <i>Supt. Shops.</i>
F. E. Emery, M. S., <i>Agr.</i>	B. S. Skinner, <i>Farm Supt.</i>
W. C. Riddick, B. A., <i>Math. and Civil Engin.</i>	Lee Watson, <i>Instr. Drawing.</i>
C. W. Scribner, B. S., <i>Mech. Engin.</i>	J. A. Bizzell, <i>Asst. in Chem.</i>
F. A. Weihe, M. A., Ph. D., <i>Phys. and Elect. Engin.</i>	H. W. Primrose, <i>Asst. in Chem.</i>
Cooper Curtice, D. V. S., M. D., <i>Biol. and Vet. Sci.</i>	W. A. G. Clark, B. E., <i>Asst. in Drawing.</i>
J. C. Gresham, Capt., U. S. A., <i>Mil. Sci. and Tactics.</i>	N. R. Stansel, B. S., <i>Asst. in Phys.</i>
T. L. Wright, B. A., <i>Instr. Math.</i>	C. D. Francks, B. E., <i>Asst. in Engl. and Math.</i>
J. M. Johnson, M. S., ( <i>Asst.</i> ) <i>Agr.</i>	J. W. Carroll, <i>Asst. in Dairying.</i>
	E. B. Owen, B. S., <i>Tutor.</i>
	Mrs. S. C. Carroll, <i>Matron.</i>
	James R. Rogers, M. D., <i>Physician.</i>

The Agricultural and Mechanical College for the Colored Race, Greensboro.

## COURSES OF STUDY.

The courses of study are: Agriculture, horticulture, arboriculture and botany, chemistry, physics, mechanics and applied mathematics, mathematics, English, history, military science and tactics, and domestic economy.

## BOARD OF INSTRUCTION.

James B. Dudley, M. A., <i>Pres.; Hist.</i>	G. C. Snow, <i>Asst. in Math. and Mech.</i>
John Thompson, B. Agr., <i>Agr. and Chem.</i>	Miss M. D. Perry, <i>Asst. in Prep. Dept.</i>
J. H. Bourne, M. E., <i>Phys., Applied Math. and Mech.</i>	H. A. Williston, B. S. Agr., <i>Asst. in Agr.</i>
Charles H. Moore, M. A., <i>Engl.</i>	C. H. Evans, <i>Workworking, Mil. Sci. and Tactics.</i>
Miss Sophia M. Parker, <i>Domestic Sci.</i>	James A. Snead, <i>Blacksmith.</i>
J. H. M. Butler, M. A., <i>Prin. Prep. Dept.</i>	Junius Rooks, <i>Foreman Farm.</i>

## NORTH DAKOTA.

North Dakota Agricultural College, *Agricultural College.*

## COURSES OF STUDY.

Four-year courses leading to the degree of B. S. are as follows: Agriculture, mechanics, and science; there are also short courses in agriculture, dairying, and domestic economy.

## BOARD OF INSTRUCTION.

J. H. Worst, <i>Pres.</i>	H. L. Bolley, M. S., <i>Bot. and Zool.</i>
E. F. Ladd, B. S., <i>Chem.</i>	Merton Field, B. S., ( <i>Asst.</i> ) <i>Bot. and Zool.</i>
C. M. Hall, B. S., <i>Geol.</i>	E. S. Keene, B. S., <i>Mech.</i>
W. C. Langdon, D. V. S., <i>Vet. Sci.</i>	Miss M. B. Senn, M. S., <i>Domestic Sci.</i>
J. H. Shepperd, M. S. A., <i>Agr.</i>	Mrs. Eva E. Boyles, <i>Asst. in Modern Lang.</i>
A. M. Ten Eyck, M. S., ( <i>Asst.</i> ) <i>Agr.</i>	Mrs. P. A. Evans, <i>Libr.</i>
L. S. Bottenfield, M. A., <i>Modern Lang.</i>	Mrs. Ethel McVetty, <i>Asst. Libr.</i>
H. W. McArdle, B. S., <i>Math.</i>	H. M. Ash, <i>Supt. Farm.</i>
E. E. Kaufman, B. Agr., <i>Dairyman.</i>	P. W. Farnham, <i>Accountant and Book-keeper.</i>
C. B. Waldron, B. S., <i>Hort. and For.</i>	

## OHIO.

Ohio State University,<sup>1</sup> *Columbus.*

## COURSES OF STUDY.

This university is divided into six colleges, as follows: Agriculture and Domestic Science; Arts, Philosophy, and Science; Engineering; Law; Pharmacy; and Veterinary Medicine. There are twenty-eight courses of study, as follows: Four-year courses leading to degrees—Agriculture, arts, ceramics, chemistry, domestic economy, civil engineering, electrical engineering, mechanical engineering, mine engineering, English philosophy, horticulture and forestry, industrial arts, Latin philosophy, law, modern language, philosophy, pharmacy, science, and veterinary medicine. Short courses—Agriculture, ceramics, domestic economy, industrial arts, mining, and pharmacy. Architecture, course preparatory to law and journalism, and course preparatory to medicine, three years each; dairying, three months. The degrees granted are as follows: In the College of Agriculture and Domestic Science, the degree B. Sc. in agriculture, B. Sc. in horticulture and forestry, and B. Sc. in domestic economy. In the College of Arts, Philosophy, and Science: B. A., B. Ph., and B. Sc. In the College of Engineering: C. E., E. M., E. M. in ceramics, M. E., M. E. in electrical engineering, B. Sc. in industrial arts, and B. Sc. in chemistry or in metallurgy. In the College of Law: LL. B. In the College of Pharmacy: B. Sc. in pharmacy. In the College of Veterinary Medicine: D. V. M., and a certificate of veterinary surgeon to those who fail in certain literary requirements which are demanded for the higher degree. Post-graduate work is offered in all colleges.

## BOARD OF INSTRUCTION.

James H. Canfield, M. A., LL. D., <i>Pres.</i>	S. C. Derby, M. A., <i>Latin.</i>
Edward Orton, Ph. D., LL. D., <i>Geol.</i>	W. R. Lazenby, M. Agr., <i>Hort. and For.</i>
W. H. Scott, M. A., LL. D., <i>Philos.</i>	J. R. Smith, M. A., <i>Greek.</i>
N. W. Lord, M. E., <i>Dean College Engin.,</i>	H. A. Weber, Ph. D., <i>Agr. Chem.</i>
<i>Min., and Metallurgy.</i>	B. F. Thomas, Ph. D., <i>Phys.</i>

<sup>1</sup> Exclusive of College of Law.

## BOARD OF INSTRUCTION—continued.

- G. W. Knight, PH. D., *American Hist. and Polit. Sci.; Constitutional Law.*  
 R. D. Bohannon, B. S., C. E., M. E., *Math.*  
 Herbert Osborn, M. S., *Zool. and Ent.*  
 C. N. Brown, C. E., *Civil Engin.*  
 W. T. Magruder, M. E., *Mech. Engin.*  
 E. A. Eggers, *German.*  
 Albert M. Bleile, M. D., *Anat. and Physiol.*  
 Frank E. Sanborn, B. S., *Dir. Indus. Dept.*  
 Edward Orton, jr., M. E., *Dir. Ceramics and Clayworking.*  
 S. A. Norton, PH. D., LL. D., *Lecturer on Chem.*  
 A. E. Vinson, *Asst. in Agr. Chem.*  
 W. D. Gibbs, (Assoc.) *Agr.*  
 C. E. Sherman, C. E., (Asst.) *Civil Engin.*  
 E. A. Hitchcock, M. E., (Assoc.) *Expt. Engin.*  
 J. E. Boyd, M. S., (Asst.) *Phys.*  
 G. W. McCoard, M. A., (Asst.) *Math.*  
 F. C. Caldwell, B. A., M. E., (Assoc.) *Elect. Engin.*  
 Perla G. Bowman, (Assoc.) *Domestic Sci.*  
 F. C. Clark, PH. D., (Assoc.) *Econ. and Sociology.*  
 H. J. Noyes, (Asst.) *Dairy Husb.*  
 C. W. Mesloh, M. A., (Asst.) *German.*  
 J. R. Taylor, B. A., (Asst.) *Rhet. and Engl. Lang.*  
 M. P. Brush, Ph. D., *Asst. in French.*  
 C. L. Arnold, M. S., *Asst. in Math.*  
 E. M. Van Harlingen, M. S., (Asst.) *Anat. and Physiol.*  
 C. A. Dye, G. PH., (Asst.) *Pharmacy.*  
 J. P. Gordy, PH. D., *Education.*  
 John T. Martin, 1st Lieut., 5th Artillery, U. S. A., *Mil. Sci. and Tactics.*  
 W. A. Kellerman, PH. D., *Bot.*  
 Thomas F. Hunt, M. S., *Dean College Agr. and Domestic Sci.; Agr.*  
 A. C. Barrows, M. A., D. D., *Dean College Arts, Philos., and Sci.; Engl. Lit.*  
 J. V. Denney, B. A., *Sec. Faculty; Rhet. and Engl.*  
 B. L. Bowen, PH. D., *Romance Lang. and Lit.*  
 R. I. Fulton, M. A., *Elocution and Oratory.*  
 G. B. Kauffman, B. S., *Dean College Pharmacy; Pharmacy.*  
 W. C. Mills, B. S. (H. & F.), *Curator Archaeology.*  
 D. S. White, D. V. S., *Vet. Medicine; Dean College Vet. Medicine.*  
 H. C. Lord, B. S., (Assoc.) *Astron.*  
 C. P. Linhart, *Dir. Gymnasium; Instr. Phys. Education.*  
 J. N. Bradford, M. E., (Assoc.) *Drawing.*  
 Wm. McPherson, jr., D. SC., *Chem.*  
 F. A. Ray, M. E., (Assoc.) *Mining Engin.*  
 Frank Ruhlen, B. S., *Asst. in Agr.*  
 J. A. Bownocker, D. S., (Asst.) *Geol.*  
 C. W. Foulk, B. A., (Asst.) *Chem.*  
 W. L. Graves, M. A., (Asst.) *Rhet.*  
 W. H. Siebert, M. A., (Assoc.) *Hist.*  
 A. W. Hodgman, PH. D., (Asst.) *Greek and Latin.*  
 W. F. Lavery, *Asst. in Vet. Medicine.*  
 C. C. Sleffel, *Asst. in Indus. Dept. and Foremaster.*  
 E. E. Sommermeir, G. PH., *Asst. in Metallurgy.*  
 T. E. French, M. E., (Asst.) *Drawing.*  
 K. D. Swartzel, M. S., *Asst. in Math.*  
 Albert Bleininger, *Asst. Dir. in Clayworking and Ceramics.*  
 J. H. Schaffner, *Asst. in Bot.*  
 J. S. Hine, B. S., (Asst.) *Ent.*  
 T. K. Lewis, B. S., *Asst. in Drawing.*  
 F. L. Landacre, B. A., *Asst. in Zool. and Ent.*  
 C. W. Weick, *Asst. in Indus. Dept.*  
 W. A. Knight, *Asst. in Indus. Dept.*  
 Olive B. Jones, *Libr.*  
 N. H. Brown, M. A., *Asst. in Phys.*  
 Clark Wissler, *Asst. in Philos. and Pedag.*  
 O. V. Brumley, *Asst. in Vet. Medicine.*  
 Charles B. Fredericks, *Asst. in Vet. Medicine.*  
 Stella M. Elliott, *Assoc. Dir. Gymnasium.*  
 Alan Fish, E. E., *Lab. Asst. in Elect. Engin.*  
 Robert Fischer, M. PH., *Lab. Asst. in Chem.*  
 F. O. Clements, *Lab. Asst. in Chem.*  
 John F. Cunningham, M. S. (Hort.), *Asst. in Hort. and For.*  
 A. H. McIntire, M. E. in E. E., *Lab. Asst. in Indus. Arts.*  
 Horace Judd, M. E., *Lab. Asst. in Mech. Engin.*  
 Frederick T. Hale, M. E., *Fellow and Lab. Asst. in Mech. Engin.*  
 Benj. Maag, Emerson McMillen, *Fellow and Asst. in Astron.*  
 John B. Parker, B. A., *Fellow and Asst. in Rhetoric and Engl. Lang.*  
 Emma Leanna Ball, M. S., *Fellow Asst. in Math.*  
 Samuel E. Rasor, B. S., *Fellow Asst. in Math.*

## OKLAHOMA.

Oklahoma Agricultural and Mechanical College, *Stillwater*.

## COURSE OF STUDY.

The course of study requires four years for completion and leads to the degree of B. S.

## BOARD OF INSTRUCTION.

George Espy Morrow, M. A., <i>Pres.</i> ; <i>Agr.</i>	John Fields, B. S., ( <i>Assoc.</i> ) <i>Chem.</i> and <i>Phys.</i>
George Latimer Holter, B. S., <i>Chem.</i> and <i>Phys.</i>	John Hayes Bone, B. S., ( <i>Assoc.</i> ) <i>Agr.</i>
Henry Ewing Glazier, <i>Hort.</i>	Mrs. E. O. Stevenson, <i>Music.</i>
Ernest Everett Bogue, M. S., <i>Bot.</i> and <i>Ent.</i>	Miss G. M. Holt, <i>Sten.</i>
Lowery Laymon Lewis, M. S., D. V. M., <i>Zool.</i> and <i>Vet. Sci.</i>	Oscar M. Morris, B. S., <i>Asst. in Hort.</i>
Angelus C. Scott, M. A., <i>Eng.</i> and <i>Lit.</i>	Harry Edgar Thompson, B. S., <i>Prin. Prep. Dept.</i>
Richard E. Chandler, M. M. E., <i>Engin.</i>	May Overstreet, <i>Asst. Prep. Dept.</i>
James W. Means, <i>Math.</i>	H. M. Hand, <i>Libr.</i>

## OREGON.

Oregon State Agricultural College, *Corvallis*.

## COURSES OF STUDY.

There are four courses of study, each leading to the degree of B. S.: Agriculture, four years; mechanical engineering, four years; household economy (for girls), four years; and pharmacy, four years.

## BOARD OF INSTRUCTION.

Thos. M. Gateh, M. A., Ph. D., <i>Pres.</i> ; <i>Mental and Moral Sci.</i>	J. B. Horner, M. A., <i>Litt. D. Engl. Lang. and Lit.</i>
F. Berchtold, M. A., <i>Dean</i> ; <i>Lang. and Hist.</i>	Mrs. Ida B. Callahan, B. S., ( <i>Asst.</i> ) <i>Engl. Lang. and Lit.</i>
Grant A. Covell, M. E., <i>Mech.</i> , <i>Mech. Engin.</i> and <i>Phys.</i>	E. J. Lea, Cadet Major, <i>Mil. Sci. and Tactics.</i>
Ernest C. Hayward, E. E., ( <i>Asst.</i> ) <i>Mech.</i> , <i>Mech. Engin.</i> and <i>Phys.</i>	Gordon V. Skelton, C. E., <i>Math. and Civil Engin.</i>
D. W. Prichard, <i>Asst. in Woodwork.</i>	Chas. L. Johnson, B. S., ( <i>Asst.</i> ) <i>Math. and Civil Engin.</i>
Clyde M. Phillips, B. M. E., <i>Asst. in Blacksmithing.</i>	A. B. Cordley, B. S., <i>Zool. and Ent.</i>
Margaret C. Snell, M. D., <i>Household Econ. and Hygiene.</i>	E. R. Lake, M. S., <i>Bot. and Hort.</i>
Mrs. Mary Avery, <i>Asst. in Sewing Dept.</i>	Geo. Coote, <i>Florist and Gardener.</i>
James Withycombe, V. S., <i>Agr.</i> ; <i>V. Dir. Expt. Sta.</i>	E. F. Pernot, <i>Drawing and Photography.</i>
F. L. Kent, B. Agr., <i>Asst. in Dairying.</i>	Dorothea Nash, B. H. E., <i>Asst. in Drawing; Instr. Music.</i>
G. W. Shaw, Ph. D., <i>Chem.</i>	Helen V. Crawford, B. S., <i>Elocution.</i>
John F. Fulton, B. S., ( <i>Asst.</i> ) <i>Chem.</i>	Bertha Ellis, <i>Vocal Music.</i>
C. M. McKellips, Ph. C., ( <i>Asst.</i> ) <i>Chem.</i> ; <i>Instr. Phar.</i>	T. H. Crawford, <i>Clerk and Purchasing Agent.</i>

## PENNSYLVANIA.

The Pennsylvania State College, *State College*.

## COURSES OF STUDY.

The courses of study, each requiring four years for completion unless otherwise specified, are as follows: Classical course, leading to the degree of B. A.; general



science course; Latin scientific course; course in agriculture; course in biology; course in chemistry; course in civil engineering; course in electrical engineering; course in mathematics; course in mechanical engineering; course in mining engineering; course in physics; course in philosophy; a special course in chemistry and a special course in mining engineering, each requiring two years for completion; short courses in agriculture and mining, each lasting twelve weeks, and a course in dairying and in creamery work of six weeks each. The four years' courses (except classical) lead to the degree of B. S., the diploma containing mention of the course pursued. Provision is also made for post-graduate study, leading to advanced degrees, and for one year of preparatory work.

## BOARD OF INSTRUCTION.

- George W. Atherton, LL. D., *Pres.; Polit. and Social Sci.*  
 William A. Buckhout, M. S., *Bot. and Hort.*  
 I. Thornton Osmond, M. S., M. A., *Phys.*  
 Harriet A. McElwain, M. A., *Lady Prin.; Hist.*  
 Louis E. Reber, M. S., *Mech. and Mech. Engin.*  
 William Frear, PH. D., *Agr. Chem.*  
 George Gilbert Pond, M. A., PH. D., *Chem.*  
 Henry Prentiss Armsby, PH. D., *Lecturer on Stock Feeding.*  
 Henry T. Fernald, M. S., PH. D., *Zool.*  
 Benjamin Gill, M. A., *Greek and Latin.*  
 Magnus C. Ihlseng, E. M., C. E., PH. D., *Mining Engin. and Geol.*  
 John Price Jackson, B. S., M. E., *Elect. Engin.*  
 Fred E. Foss, B. S., M. A., *Civil Engin.*  
 Joseph M. Willard, B. A., *Math.*  
 Fred Lewis Pattee, M. A., *Engl. and Rhet.*  
 George C. Watson, B. Agr., M. S., *Agr.*  
 Martin G. Benedict, M. A., PH. D., *Pedag.; in Charge Subfreshman Class.*  
 Daniel C. Pearson, Capt., 2d Cavalry, U. S. A., *Mil. Sci. and Tactics.*  
 George C. Butz, M. S., (*Asst.*) *Hort.*  
 Madison M. Garver, B. S., (*Asst.*) *Phys.*  
 Franklin E. Tuttle, M. A., PH. D., (*Asst.*) *Chem.*  
 William Mason Towle, B. S., (*Asst.*) *Practical Mech.*  
 Erwin W. Runkle, M. A., PH. D., (*Asst.*) *Psych. and Ethics.*  
 Joseph H. Tudor, C. E., M. S., (*Asst.*) *Math.*  
 Thomas C. Hopkins, M. S., M. A., (*Asst.*) *Geol.*  
 T. Raymond Beyer, B. S., C. E., (*Asst.*) *Civil Engin.*  
 Carl D. Fehr, M. A., (*Asst.*) *German.*  
 Silvanus B. Newton, B. A., M. D., *Dir. Phys. Education.*  
 Charles L. Griffin, B. S., (*Asst.*) *Machine Design.*  
 Anna E. Redifer, (*Asst.*) *Indus. Art and Design.*  
 Harry Hayward, B. S., (*Asst.*) *Dairy Husb.*  
 John H. Leete, B. A., (*Asst.*) *Math.*  
 Nathaniel W. Shed, B. S., E. M., (*Asst.*) *Mining Engin. and Metallurgy.*  
 Herbert E. Dunkle, B. S., M. E., *Instr. Mech. Drawing.*  
 John A. Hunter, jr., B. S., M. E., *Instr. Mech. Engin.*  
 Irving L. Foster, M. A., *Instr. Romance Lang.*  
 Francis J. Pond, M. A., PH. D., *Instr. Assaying.*  
 Walter J. Keith, M. A., PH. D., *Instr. Chem.*  
 Paul B. Breneman, B. S., C. E., *Instr. Civil Engin.*  
 Thomas H. Taliaferro, C. E., PH. D., *Instr. Math.*  
 Elizabeth B. Meek, M. S., *Instr. Biol.*  
 Abraham H. Espenshade, B. A., *Instr. Rhet. and Elocution.*  
 Frank F. Thompson, B. S., E. E., *Instr. Elect. Engin.*  
 Charles F. Sponsler, B. S., *Instr. Pract. Mech.*  
 Charles W. Lawrence, B. S., *Asst. in Civil Engin.*  
 Frank T. Beers, B. S., *Asst. in Chem. Lab.*  
 Helen M. Bradley, *Libr.*  
 Clara Dayton Wyman, *in Charge Music.*  
 Anna Addams McDonald, *Asst. Libr.*  
 William C. Patterson, *Supt. Grounds and Buildings.*

## RHODE ISLAND.

Rhode Island College of Agriculture and Mechanic Arts, Kingston.

## COURSES OF STUDY.

The courses of study are six: Agricultural, mechanical, general scientific, chemical, biological, physics-mathematics. Each requires four years for completion, and leads to the degree of B. S. A short winter course in both agriculture and mechanics, with shop and laboratory work, together with a poultry school extending through four weeks, is given from January 1 to April 1. Agricultural high school, with a two years' course for farmers' boys who have been deprived of high school advantages.

## BOARD OF INSTRUCTION.

John H. Washburn, Ph. D., <i>Pres.</i> ; <i>Chem.</i>	Thos. C. Rodman, <i>Instr.</i> <i>Woodwork.</i>
A. A. Brigham, Ph. D., <i>Agr.</i>	John F. Knowles, B. S., <i>Instr.</i> <i>Woodwork.</i>
Homer J. Wheeler, Ph. D., <i>Geol.</i>	Mabel D. Eldred, B. S., <i>Instr.</i> <i>Drawing.</i>
<sup>1</sup> A. L. Bosworth, B. S., <i>Math.</i>	M. W. Rockwell, B. A., <i>Instr.</i> <i>Engl. and Hist.</i>
E. J. Watson, M. A., <i>Lang.</i>	Lucy H. Putnam, <i>Instr.</i> <i>Expression.</i>
Wm. E. Drake, B. S., <i>Mech. Engin.</i>	George B. Knight, <i>Instr.</i> <i>Mech.</i>
H. L. Merrow, M. A., <i>Bot.</i>	Howland Burdick, <i>Asst.</i> <i>Agr.</i>
Geo. W. Field, Ph. D., <i>Zool.</i>	M. H. Tyler, <i>Civil Engin.</i>
John E. Bucher, Ph. D., <i>Agr. Chem.</i>	J. S. Allen, jr., <i>Polit. Sci.</i>
F. W. Card, M. S., <i>Hort.</i>	F. E. Craig, <i>Asst.</i> <i>Instr.</i> <i>Mech.</i>
A. Smith, <i>Math.</i>	Nathaniel Helme, <i>Met.</i>
A. C. Scott, B. S., <i>Phys. and Elect.</i>	H. E. Brooks, <i>Sten.</i>

## SOUTH CAROLINA.

Clemson Agricultural College, Clemson College.

## COURSES OF STUDY.

There is one course of study offered in the freshman year, two in the sophomore, three in the junior and senior years—one in chemistry and agriculture, one in mechanics and engineering, and one in textile engineering.

## BOARD OF INSTRUCTION.

Henry S. Hartzog, <i>Pres.</i>	C. Hancock, <i>Instr.</i> <i>Drawing and Mech. Designing.</i>
M. B. Hardin, <i>Chem.</i>	F. S. Shiver, Ph. G., <i>Asst.</i> <i>Chem.</i>
J. S. Newman, <i>Agr.</i>	R. T. V. Bowman, <i>Instr.</i> <i>Forge and Foundry.</i>
W. H. Boehm, <i>Mech.</i>	G. E. Nesom, B. S., D. V. M., <i>Instr.</i> <i>Vet. Sci.</i>
C. M. Furman, B. A., <i>Engl.</i>	W. M. Riggs, B. S., E. and M. E., <i>Instr.</i>
W. S. Morrison, B. A., <i>Hist.</i>	<i>Elect.; in Charge Elect. Lab.</i>
G. A. Shanklin, M. A., <i>Acting Commandant; Mil. Sci. and Tactics.</i>	Albert Barnes, M. E., <i>Instr.</i> <i>Woodwork; in Charge Mech. Lab.</i>
J. G. Clinkscales, M. A., <i>Math.</i>	A. P. Anderson, M. S., Ph. D., <i>Bot.</i>
J. V. Lewis, B. E., <i>Geol.</i>	T. G. Poats, <i>Instr.</i> <i>Phys. and Machine Shop.</i>
R. N. Brackett, B. A., ( <i>Asst.</i> ) <i>Chem.</i>	E. Walker, B. S., <i>Ent. and Asst. Hort.</i>
P. T. Brodie, B. S., B. A., ( <i>Asst.</i> ) <i>Math.; Instr. Civil Engin.</i>	J. H. M. Beaty, <i>Dir. Textile Dept.</i>
D. W. Daniel, ( <i>Asst.</i> ) <i>Engl.</i>	G. Shanklin, <i>Tutor Math.</i>
J. F. C. DuPre, ( <i>Asst.</i> ) <i>Agr. and Hort.</i>	R. E. Lee, <i>Asst. Instr.</i> <i>Drawing.</i>
C. M. Conner, B. S., <i>Animal Husb. and Dairying.</i>	W. W. Klugh, B. S., <i>Tutor.</i>
A. M. Redfearn, B. S., M. D., <i>Instr. Physiol.</i>	S. M. Martin, M. A., <i>Tutor.</i>

<sup>1</sup> Studying in Germany

## The Colored Normal, Industrial, Agricultural, and Mechanical College of South Carolina, Orangeburg.

### COURSES OF STUDY.

The courses of study are four in number and require four years each for completion: The collegiate normal and industrial course, leading to the degree of B. A.; the agricultural course, leading to the degree of B. Agr.; the mechanical course, leading to the degree of B. S.; the preparatory course, leading up to the three above-named courses.

### BOARD OF INSTRUCTION.

Thos. E. Miller, M. A., <i>Pres.; Hist., Dir. Indus.</i>	Julia A. McLain, <i>Kindergarten, and Asst. in Engl.</i>
W. R. A. Palmer, M. A., D. D., <i>Engl., Lit., Pedag., and Moral Sci.</i>	Olive A. Sasportas, <i>Asst. in Engl.</i>
R. S. Wilkinson, M. A., <i>Math., Phys., and Mil. Sci.</i>	S. M. Boston, <i>Supt. Ironwork.</i>
J. W. Hoffman, Ph. D., <i>Agr., Chem., and Zool.</i>	Wm. Gruber, <i>Supt. Woodwork.</i>
N. C. Nix, B. A., <i>Math.</i>	J. R. Steele, <i>Supt. Brickwork.</i>
R. L. Douglass, B. A., <i>Engl.</i>	J. A. Tolbert, <i>Supt. Painting.</i>
Sarah V. Smalls, <i>Prin. Prep. Dept.; Phys. Sci.</i>	G. C. Williams, <i>Supt. Farm.</i>
Louise B. Fordham, <i>Drawing and Art.</i>	W. W. Williams, <i>Asst. in Ironwork.</i>
Mary J. Miller, <i>Bookkeeping and Typewriting; College Accountant.</i>	C. H. Waller, <i>Asst. in Dairy.</i>
	S. D. Frazier, <i>Asst. in Surveying and Phys.</i>
	E. F. Mikell, <i>Instr. Band Music and Engl.</i>
	C. C. Davis, <i>Dressmaking and Plain Sewing.</i>
	C. J. Gregg, <i>Domestic Econ. and Matron.</i>
	John Palmer, <i>Engin.</i>

## SOUTH DAKOTA.

### South Dakota Agricultural College, Brookings.

### COURSES OF STUDY.

About four-fifths of the regular five years' work leading to the B. S. degree is the same for all. The remainder of the *fifty-two* courses required are elective and must be taken in some two departments of instruction. Regular three years' work in pharmacy is offered for the Ph. G. degree. A diploma is granted those completing the prescribed year's work in commercial science and steam engineering; and a certificate to those completing the special quarter year's work offered in agriculture, horticulture, and dairying.

### BOARD OF INSTRUCTION.

J. W. Heston, Ph. D., LL. D., <i>Pres.; Hist. and Econ.</i>	Marcus Johnson, <i>Asst. in Steam Engin.</i>
G. L. Brown, M. S., <i>Sec.; Math. and Astron.</i>	Eva P. Mathews, B. S., <i>Indus. Art.</i>
E. A. Burnett, B. S., <i>Animal Husb. and Dairy Sci.</i>	H. B. Mathews, B. S., <i>Phys.</i>
E. C. Chilcott, M. S., <i>Geol. and Agronomy.</i>	E. L. Moore, B. S., D. V. S., <i>Zool. and Vet. Sci.</i>
A. B. Crane, B. S., <i>Asst. in Math. and Engin.</i>	F. G. Orr, ( <i>Asst.</i> ) <i>Commercial Dept. and Libr.</i>
Stacy A. Cochrane, <i>Asst. in Agr. Engin.</i>	Miss E. L. Pratt, <i>Music and Phys. Culture.</i>
A. B. Crosier, <i>Commercial Sci.</i>	A. R. Saunders, M. E., <i>Arch. and Agr. Engin.</i>
Miss N. E. Folsom, B. S., <i>Engl. Lang.</i>	De Alton Saunders, M. A., <i>Bot. and Ent.</i>
Miss Isabella R. Frisbie, B. S., <i>Domestic Sci.</i>	J. H. Shepard, B. S., <i>Chem.</i>
N. E. Hansen, M. S., <i>Hort. and For.</i>	H. C. Solberg, M. E., <i>Mech. Engin.</i>
A. S. Harding, M. A., ( <i>Asst.</i> ) <i>Hist. and Econ.</i>	W. S. Thornber, B. S., ( <i>Asst.</i> ) <i>Hort. and Bot.</i>
A. B. Holm, B. S., <i>Acting Commandant.</i>	J. H. Wheeler, B. A., <i>Modern Lang.</i>
H. H. Husted, B. S., <i>Asst. in Music and Math.</i>	B. T. Whitehead, B. S., Ph. G., <i>Pharmacy.</i>
	William H. Knox, B. A., ( <i>Asst.</i> ) <i>Chem.</i>
	R. F. Kerr, M. A., ( <i>Asst.</i> ) <i>Lang.</i>

## TENNESSEE.

State Agricultural and Mechanical College of the University of Tennessee,  
Knoxville.

## COURSES OF STUDY.

The courses of study are seven: Literary course, scientific course, course in agriculture, course in civil engineering, course in mechanical engineering, course in electrical engineering, and chemical course. The degrees of B. A. and B. S. are conferred.

## BOARD OF INSTRUCTION.

Chas. W. Dabney, Ph. D., LL. D., <i>Pres.</i>	C. D. Schmitt, M. A., <i>Math.</i>
W. W. Carson, C. E., M. E., <i>Civil Engin.</i>	Edward T. Sanford, M. A., LL. B., <i>Lecturer on Hist. of Tennessee.</i>
T. W. Jordan, M. A., <i>Latin.</i>	Henry J. Darnall, ( <i>Adjunct</i> ) <i>Modern Lang.</i>
C. E. Wait, C. E., M. E., Ph. D., F. C. S., <i>Chem.</i>	Andrew H. Nave, Capt., U. S. A., <i>Mil. Sci. and Tactics.</i>
———, <i>Agr. and Hort.</i>	J. R. McColl, B. S., ( <i>Asst.</i> ) <i>Mech. Engin.</i>
G. F. Mellen, M. A., Ph. D., <i>Greek and French.</i>	R. L. Watts, B. A., <i>Instr. Hort.</i>
J. B. Heuneman, M. A., Ph. D., <i>Engl. and German.</i>	Charles E. Ferris, B. S., <i>Instr. Drawing.</i>
T. C. Karns, M. A., <i>Philos. and Pedag.</i>	S. M. Bain, B. A., <i>Instr. Bot.</i>
Charles A. Perkins, Ph. D., <i>Phys. and Elect. Engin.</i>	C. E. Chambliss, M. S., <i>Instr. Zool.</i>
Charles W. Turner, M. A., ( <i>Acting</i> ) <i>Hist.</i>	Edwin Wiley, B. S., <i>Libr., Instr. Engl.</i>
James Maynard, M. A., <i>Lecturer on International Law.</i>	Weston M. Fulton, B. A., <i>Instr. Met.</i>
Joshua W. Caldwell, M. A., <i>Lecturer on Constitutional Hist.</i>	Charles O. Hill, <i>Asst. Chem., Instr. Chem. and Pharmacy.</i>
	John F. Voorhees, <i>Instr. Phys. Culture.</i>
	John B. Guinn, <i>Foreman Shops.</i>

## TEXAS.

State Agricultural and Mechanical College of Texas, College Station.

## COURSES OF STUDY.

There are four regular courses of study: Agriculture, horticulture, mechanical engineering, and civil engineering. Each extends through four years, and leads to the degree of B. S., the particular course being specified in the diploma. Special, elective, and graduate courses are also provided.

## BOARD OF INSTRUCTION.

L. L. Foster, <i>Pres.</i>	A. L. Banks, B. A., M. S., ( <i>Assoc.</i> ) <i>Math.</i>
R. H. Whitlock, M. E., <i>Mech. Engin.</i>	H. Ness, B. S., ( <i>Asst.</i> ) <i>Hort. and Bot.</i>
H. H. Harrington, M. S., <i>Chem. and Min.</i>	D. W. Spence, B. S., C. E., ( <i>Assoc.</i> ) <i>Civil Engin. and Phys.</i>
C. Puryear, M. A., C. E., <i>Math.</i>	C. E. Burgoon, B. M. E., ( <i>Asst.</i> ) <i>Mech. Engin.</i>
Mark Francis, D. V. M., <i>Vet. Sci.</i>	E. W. Kerr, B. S., ( <i>Asst.</i> ) <i>Mech. Engin.</i>
F. E. Giesecke, M. E., <i>Drawing.</i>	A. M. Soule, B. S. A., ( <i>Asst.</i> ) <i>Agr.</i>
J. C. Nagle, M. A., C. E., M. C. E., <i>Civil Engin. and Phys.</i>	H. W. South, ( <i>Asst.</i> ) <i>Engl. and Hist.</i>
R. H. Price, B. S., <i>Hort., Bot., and Ent.</i>	A. C. Gillespie, M. D., <i>Surgeon.</i>
T. C. Bittle, M. A., Ph. D., <i>Lang.</i>	J. A. Baker, <i>Sec.</i>
J. H. Connell, M. S., <i>Agr.</i>	J. G. Harrison, <i>Bookkeeper.</i>
C. W. Hntson, <i>Engl. and Hist.</i>	Bernard Sbisá, <i>Steward.</i>
H. B. Martin, <i>Mil. Sci.; Commandant.</i>	C. A. Lewis, <i>Foreman Carpenter Shop.</i>
R. F. Smith, ( <i>Assoc.</i> ) <i>Math.</i>	H. C. Kyle, B. S., <i>Foreman Farm.</i>
P. S. Tilson, M. S., ( <i>Assoc.</i> ) <i>Chem.</i>	B. C. Pittuck, <i>Station Agr.</i>
W. B. Philpott, M. S., ( <i>Assoc.</i> ) <i>Engl. and Hist.</i>	



## UTAH.

## Agricultural College of Utah, Logan.

## COURSES OF STUDY.

The college work includes five distinct lines of instruction: Course in agriculture, course in domestic arts, course in mechanical engineering, course in civil engineering, and commercial course. There are three special courses: A two years' course in agriculture, a two years' course in domestic arts, a two years' commercial course, and a preparatory department. In addition to these special courses there are two courses of winter lectures covering ten weeks each: A course of agricultural lectures and a course of lectures for the domestic arts department.

## BOARD OF INSTRUCTION.

Joseph M. Tanner, <i>Pres.</i> ; <i>Polit. Sci.</i>	Lewis A. Merrill, B. S., ( <i>Asst.</i> ) <i>Agr.</i>
John T. Caine, jr., B. S., <i>Prin. Prep. Dept.</i>	Edward W. Robinson, ( <i>Asst.</i> ) <i>German and Drawing.</i>
James Dryden, ( <i>Asst.</i> ) <i>Met. and Sten.</i>	Samuel W. Dunning, 1st Lieut., 16th Infantry, U. S. A., <i>Mil. Sci. and Tactics.</i>
Elias J. MacEwan, M. A., <i>Engl. Lang. and Lit.</i>	John W. Faris, <i>Prin. Commercial Dept., Commercial Econ., and Bookkeeping.</i>
George L. Swendsen, B. S., C. E., <i>Civil Engin.</i>	Ruth Evelyn Moench, <i>Instr. Elocution and Phys. Culture.</i>
E. B. Linfield, B. S. A., <i>Dairying and Animal Husb.</i>	Joseph E. Wilson, <i>Instr. Penmanship.</i>
Willard S. Langton, B. S., <i>Math., Biol.</i>	Ulysses P. Hedrick, <i>Bot., Hort., and Ent.</i>
<sup>1</sup> John A. Widtsoe, B. S., <i>Chem. and Min.</i>	George Thomas, B. A., <i>Hist.; Instr. Chem.</i>
Mrs. Dalinda Cotey, B. S., <i>Domestic Arts.</i>	August J. Hanson, <i>Foreman Woodworking Dept.</i>
Miss Sarah E. Bowen, <i>Instr. Sewing, Dress-making, and Millinery.</i>	J. P. Griffin, <i>Foreman Ironworking Dept.</i>
Joseph Jenson, <i>Mech. Engin.; Dir. Workshops.</i>	John Stewart, B. S., <i>Asst. in Chem. Lab. Expt. Sta.</i>
Clarence E. Snow, B. S., <i>Math. and Phys.</i>	James C. Thomas, <i>Asst. in Chem. Lab. Expt. Sta.</i>
Mrs. Sara G. Goodwin, <i>Libr. and Instr. Music.</i>	John A. Crockett, <i>Asst. in Dairy Dept.</i>
Luther Foster, B. S., M. S. A., <i>Agr.; Dir. Expt. Sta.</i>	

## VERMONT.

## University of Vermont and State Agricultural College, Burlington.

## COURSES OF STUDY.

The four-year academical courses are seven in number: Classical, leading to the degree of B. A.; literary-scientific, leading to the degree of Ph. B.; civil and sanitary engineering, electrical engineering, mechanical engineering, chemical, agricultural, leading to the degree of B. S., the particular course being specified in the diploma. A dairy-school course of four weeks' duration is carried on each winter.

## BOARD OF INSTRUCTION.

M. H. Buckham, D. D., <i>Pres.</i> ; <i>Polit. and Social Philos.</i>	G. H. Perkins, PH. D., <i>Natural Hist.</i>
H. A. P. Torrey, LL. D., <i>Intellectual and Moral Philos.</i>	J. E. Goodrich, D. D., <i>Latin.</i>
V. G. Barbour, PH. B., C. E., <i>Mech. and Bridge Engin.</i>	W. C. Kitchin, PH. D., <i>French.</i>
	J. L. Hills, B. S., <i>Agr. Chem.</i>
	F. Tupper, jr., PH. D., <i>Rhet. and Eng. Lit.</i>
	A. W. Slocum, M. A., <i>Phys.</i>

<sup>1</sup>On leave.

## BOARD OF INSTRUCTION—continued.

G. E. Howes, Ph. D., <i>Greek.</i>	J. Eaton, <i>Instr. Shopwork.</i>
F. A. Waugh, M. S., <i>Hort.</i>	C. W. Doten, Ph. B., <i>Instr. Elocution; Sec. and Registrar.</i>
C. J. Bailey, M. A., 1st Lieut., 1st Artillery, U. S. A., <i>Mil. Sci. and Tactics.</i>	W. G. Bullard, Ph. D., <i>Instr. Math.</i>
F. A. Rich, V. S., M. D., <i>Instr. Vet. Medicine.</i>	J. B. Stearns, B. S., <i>Min.</i>
S. F. Emerson, Ph. D., <i>Hist.</i>	H. A. Torrey, Ph. D., <i>Instr. Chem.</i>
N. F. Merrill, Ph. D., <i>Chem.</i>	G. E. P. Smith, B. S., <i>Instr. Civil Engin.</i>
A. L. Daniels, D. Sc., <i>Math.</i>	G. E. Humphrey, <i>Instr. Dairying.</i>
L. J. Huff, M. A., <i>German.</i>	A. D. Butterfield, B. S., <i>Instr. Math. and Eng.</i>
J. W. Votey, C. E., <i>Civil Engin.</i>	A. Z. Eno, B. A., <i>Engl. and German.</i>
H. A. Storrs, C. E., <i>Elect. Engin.</i>	J. C. Robinson, <i>Instr. Dairying.</i>
L. R. Jones, Ph. B., <i>Bot.</i>	R. T. Jaynes, <i>Dairying.</i>
A. W. Ayer, B. S., <i>Mech. Engin.</i>	Duncan Stuart, <i>Dairying.</i>
H. B. Chittenden, M. A., <i>Instr. Agr. Dept.</i>	Edith Clarke, <i>Libr.</i>

## VIRGINIA.

Virginia Agricultural and Mechanical College, *Blacksburg.*

## COURSES OF STUDY.

The courses of study are seven, each requiring four years for completion and leading to the degree of B. S.: Agricultural course, horticultural course, applied chemistry course, general science course, civil engineering course, mechanical engineering course, and electrical engineering course. There are also two courses which require two years for completion and lead to a certificate of practical agriculture and practical mechanics.

## BOARD OF INSTRUCTION.

J. M. McBryde, Ph. D., LL. D., <i>Pres.: Agr. Chem.</i>	W. D. Saunders, <i>Asst. Dairy Husb.</i>
W. B. Alwood, <i>Hort., Ent. and Myc.</i>	J. R. Parrott, ( <i>Adjunct</i> ) <i>Woodwork and Dir. Shops.</i>
R. H. Hudnall, Ph. D., <i>Engl. Hist. and Polit. Econ.</i>	A. T. Eskridge, M. S., <i>Instr. Min. and Geol.</i>
E. A. Smyth, jr., M. A., <i>Biol.</i>	C. I. Wade, <i>Treas.</i>
T. P. Campbell, M. A., <i>Modern Lang.</i>	W. G. Conner, M. E., <i>Instr. Machine Work.</i>
S. R. Pritchard, M. A., <i>Elect. Engin.</i>	C. McCullough, D. V. M., M. D., <i>Instr. Vet. Sci.</i>
R. C. Price, <i>Chem., Min. and Geol.</i>	A. W. Drinkard, M. S., <i>Sec.: Instr. Engl. and Hist.</i>
D. O. Nourse, B. S., <i>Agr.</i>	J. W. Stull, C. E., <i>Instr. Math. and Civil Engin.</i>
A. T. Finch, M. D., <i>Mil. Sci. and Tactics and Instr. Physiol.; Commandant of Cadets.</i>	W. B. Ellett, M. S., <i>Instr. Chem.</i>
L. S. Randolph, M. E., <i>Mech. Engin.</i>	J. S. A. Johnson, B. S., <i>Asst. in Mech. Drawing and Asst. Commandant.</i>
W. M. Patton, C. E., <i>Civil Engin.</i>	C. Lee, B. S., <i>Asst. in Elect. Engin.</i>
R. J. Davidson, M. A., <i>Anal. Chem.</i>	H. L. Price, B. S., <i>Asst. in Hort.</i>
E. P. Niles, D. V. M., <i>Vet. Sci.</i>	M. Ferguson, B. S., <i>Asst. in Math.</i>
C. E. Vawter, jr., B. S., ( <i>Acting</i> ) <i>Math. and Phys.</i>	
G. W. Walker, B. A., <i>Asst. in Math. and Engl.</i>	

The Hampton Normal and Agricultural Institute, *Hampton.*

## COURSE OF STUDY.

The course of study requires three years for completion, and a diploma is given on graduation.

## BOARD OF INSTRUCTION.

H. B. Frissell, D. D., <i>Prin.</i> ; <i>Mental Philos.</i>	Flora F. Lowe, <i>Engl. and Arith.</i>
H. B. Turner, <i>Pastor</i> ; <i>Bible Lessons.</i>	Albert Howe, <i>Supt. Indus.</i>
Alexander Purves ( <i>Treas.</i> ), <i>Hampton.</i>	Martha M. Waldron, M. D., <i>Resident Physician.</i>
Francis C. Briggs, <i>Business Agent.</i>	Elizabeth Clark, <i>Lady Prin.</i> ; <i>Math.</i>
Elizabeth Hyde, <i>In Charge Academic Dept.</i>	M. Isabella McNear, <i>Domestic Sci.</i>
Frank K. Rogers, <i>Dir. Armstrong and Slater Memorial Trade School.</i>	L. R. Miner, <i>Drawing.</i>
C. Augusta Adams, <i>Engl. and Lit.</i>	Celia S. Nettleton, <i>Training School.</i>
Mrs. M. A. Armstrong, <i>Sci.</i>	Mary W. Nettleton, <i>In Charge Whittier School.</i>
Alice M. Bacon, <i>Civics and Rhet.</i>	Williametta O. Nash, <i>Geog.</i>
Alice I. Boardman, <i>Manual Training.</i>	W. H. Parker, <i>Machinist.</i>
Hugh M. Brown, <i>Phys.</i>	Lucy A. Pratt, <i>Gymnastics.</i>
William L. Brown, <i>Bookkeeping.</i>	Sarah E. Proctor, <i>Arith. and Geog.</i>
Harris Barrett, <i>Bookkeeping.</i>	Ella Richardson, <i>Shelbanks Night School.</i>
Cora F. Butler, <i>Lit. and Hist.</i>	S. J. Scott, <i>Wheelwright.</i>
A. Louise Cleaveland, <i>Engl. and Arith.</i>	W. S. Sweetser, ( <i>Asst.</i> ) <i>Agr.</i>
Bessie Cleaveland, <i>Vocal Music.</i>	Myrtilla J. Sherman, <i>Gram., Composition.</i>
Rossa B. Cooley, <i>Sci. and Engl.</i>	Susan Showers, <i>Geog.</i>
Jessie A. Coope, <i>Gymnastics.</i>	Emma F. Small, <i>Sloyd Teacher.</i>
Jane E. Davis, <i>Sci.</i>	Emma B. Smith, <i>First Grade, Whittier.</i>
C. H. DeYarmett, <i>Metal Work.</i>	Clara M. Snow, <i>Engl. and Arith.</i>
C. Duncan, <i>Blacksmithing.</i>	E. H. Spennie, <i>Wood Turning.</i>
Blanche Finley, <i>Kindergarten.</i>	Helen Tucker, <i>Arith. and Engl.</i>
Dora Freeman, <i>Lit., Bible, and Reading.</i>	M. W. Twitchell, <i>Engl., Arith., and Geog.</i>
Charles L. Goodrich, <i>Agr.</i>	Jessie A. Wier, <i>Sewing and Dressmaking.</i>
L. M. Goodrich, <i>Engl. and Arith.</i>	F. D. Wheelock, <i>Bible.</i>
John G. Hartelius, <i>Carpentry.*</i>	Julia F. Winter, <i>Bible Hist.</i>
Leonora E. Herron, <i>Libr.</i>	Jane S. Worcester, <i>Hist.</i>
Emma Johnston, <i>Arith.</i>	R. R. Moton, <i>Commandant of Cadets.</i>
Jane Langley, <i>Methods.</i>	Allan Washington, <i>Asst. Commandant.</i>
J. F. LaCrosse, <i>Painting.</i>	W. A. Webster, <i>Bricklaying and Plastering.</i>
D. R. Lewis, <i>Mech. Drawing.</i>	

## WASHINGTON.

Washington Agricultural College and School of Science, Pullman.

## COURSES OF STUDY.

Courses of study are offered in the following lines: Mathematics, civil engineering, mining engineering, chemistry, botany and zoology, agriculture, horticulture, English language and literature, economic science and history, electrical engineering, steam engineering, hydraulic engineering, military science and tactics, modern languages, and supplemental courses in Latin, physics, dairying, pharmacy, and veterinary science.

## BOARD OF INSTRUCTION.

E. A. Bryan, M. A., <i>Pres.</i> ; <i>Hist. and Polit. Sci.</i>	Osmar L. Waller, Ph. M., <i>Math. and Civil Engin.</i>
Albert E. Egge, Ph. D., <i>Engl. Lang. and Lit.</i>	Elton Fulmer, M. A., <i>Chem.</i>
Charles V. Piper, M. S., <i>Bot. and Zool.</i>	W. Chase, 1st Lieut., 22d Infantry, U. S. A., <i>Mil. Sci. and Tactics.</i>
George H. Watt, B. S., <i>Prin. Prep. Dept.</i>	William J. Spillman, M. S., <i>Agr.</i>
Eleazer Darrow, E. E., <i>Mech. Engin. and Phys.</i>	W. G. Beach, M. A., <i>Econ. Sci.</i>
Ward Barnum, M. E., ( <i>Asst.</i> ) <i>Mech. Engin.</i>	Annie Howard, <i>Rhet. and Composition.</i>
	John A. Balmer, <i>Hort.</i>

## BOARD OF INSTRUCTION—continued.

W. H. Heileman, B. S., *Asst. in Chem.*S. B. Nelson, D. V. M., *Vet. Sci.*R. W. Doane, B. A., *Asst. in Zool.*C. A. Barry, *Modern Lang.*W. J. Roberts, M. A., (*Asst.*) *Math.*Solon Shedd, B. A., *Sec. Faculty; (Asst.) Geol. and Min.*S. H. Webster, B. A., *Instr. Commercial Branches.*L. V. Corner, B. S., *Tutor Prep. Dept.*D. A. Brodie, B. S., *Tutor Prep. Dept.*H. C. McKinstry, *Instr. Butter Making.*J. H. Hecker, *Instr. Cheese Making.*Lillian A. Bolster, *Instr. Piano.*

## WEST VIRGINIA.

## West Virginia University, Morgantown.

## COURSES OF STUDY.

The four-year courses with degrees are: Classical course, B. A.; philosophical course, Ph. B.; modern literature course, B. L.; scientific course, B. S.; course in mechanical engineering, B. S. M. E.; course in civil engineering, B. S. C. E.; scientific course in agriculture, B. S. Agr., and the law course, LL. B. The two-year courses are: The two-year certificate law course, not leading to any degree, and the short course in practical agriculture, leading to the degree of B. Agr. Preparatory, graduate, and special courses are also offered.

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## STATION STAFF.

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W. L. Carlyle, B. S. A., <i>Animal Husb.</i>	

## WYOMING.

**Wyoming Agricultural Experiment Station, *Laramie*.**

Department of the University of Wyoming.

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## STATION STAFF.

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## HAWAIIAN ISLANDS.

**Hawaiian Experiment Station, *Honolulu*.**

## STATION STAFF.

Walter Maxwell, <i>Dir. and Chief Chem.</i>	C. F. Eckart, <i>2d Asst. Chem.</i>
J. T. Crawley, <i>1st Asst. Chem.</i>	E. G. Clarke, <i>Field Asst.</i>

This station has been maintained since 1895 by the Hawaiian Sugar Planters' Association.

## FOREIGN EXPERIMENT STATIONS.

### ALGERIA.

Station.	Location.	Director.
Agricultural Station .....	Algiers .....	M. Dugast.

### AUSTRIA-HUNGARY.

Agricultural Experiment Station.....	Budapest .....	Prof. Dr. Liebermann.
Seed Control Station.....	do .....	
Chemical Laboratory of the Agricultural Secondary School.	Chrudim, Bohemia....	Prof. Joh. Trojan.
Seed Control Station.....	Debrecin .....	
Agricultural Chemical Experiment Station.....	Dublany, Galicia.....	J. M. Pomorski.
Seed Testing Station .....	do .....	Dr. Ign. Szyszyłowicz.
Agricultural Chemical Experiment Station of the Vorarlberg Agricultural Society.	Feldkirch, Vorarlberg	Dr. Willh. Engling.
Imperial Royal Agricultural Chemical Experiment Station for Sericulture and Viticulture.	Görz.....	Johann Bolle.
Pomological and Seed Control Station of the Society for Fruit Growing of Middle Steiermark.	Gratz, Steiermark ....	Dr. Ed. Hotter.
Seed Control Station of the Agricultural Secondary School.	Kaaden, Bohemia .....	Prof. Andr. Nowozek.
Chemical Experiment Station .....	Kaschau .....	
Seed Control Station .....	do .....	Prof. J. Huzolinsky.
Chemical Experiment Station .....	Kesthely .....	Prof. Dr. G. Czánady.
Agricultural Chemical Experiment Station of the Royal Imperial Agricultural Society.	Klagenfurt, Kärnten	Dr. Ernst Kramer.
Laboratory for Investigations on Seeds, Fertilizers, and Soils at the Agricultural School.	Klattau, Bohemia.....	Friedrich Nebovidsky.
Chemical Experiment Station .....	Klausenburg .....	Prof. Dr. Sabinig.
Imperial Royal Chemical Physiological Experiment Station for Grape and Fruit Growing.	Klosterneuburg .....	Prof. Dr. Leopold Roessler.
Seed Control Station .....	Kolozs-Monostor.....	Prof. Dr. Adalb. v. Szanizlo.
Agricultural Chemical Experiment Station.....	Leitmeritz, Bohemia..	J. Kollar.
Prince Schwarzenberg Chemical Experiment Station.	Lobositz .....	Dr. J. Hanamann.
Agricultural Chemical Experiment Station of the Fruit and Grape Culture School.	Marburg, Steiermark.	Edm. Schmid.
Imperial Royal Experiment Station for Forestry.	Mariabrunn .....	K. Friedrich.
Agricultural Chemical Experiment Station of the Intermediate Agricultural School.	Nenttschein, Mähren	A. Wiewer.
Seed Control and Experiment Station of the State Agricultural Secondary School.	do .....	Prof. Rich. Hamerak.
Agricultural Experiment Station.....	Oberhermsdorf, Silesia.	Jos. Seissl.
Experimental Station of Fruit and Grape Growing at the State Institute.	Parenzo, Istria .....	Dr. K. Hugues.
Experimental Laboratory of the Agricultural School.	Pilsen, Bohemia .....	Kundrat.
Agricultural Chemical and Seed Control Station of the Ministry of Agriculture of the Kingdom of Bohemia.	Prague .....	Dr. J. Nickerl.
Bohemian Experiment Station for Brewing.....	do .....	F. Chodonnsky.
Experiment Station for Distilling, of the Society for Distilling.	do .....	Karl Kruis.
Seed Control and Experiment Station of the State Agricultural Secondary School.	Perau, Mähren.....	Johann Bañha.
Chemical Experiment Station.....	Pressburg .....	Prof. Dr. J. Lucich.
Laboratory for Investigations on Agricultural Products of the Agricultural Secondary School.	Raudnitz-Hracholusk, Bohemia.	Prof. Alois Mollenda.
Experiment Station for Moor Culture of the Count Hompesch Estate.	Rudnick, Galicia .....	Emil Koppens.
Agricultural School and Experiment Station....	S. Michele, Tirol.....	Edm. Mach.
Royal Imperial Agricultural Experiment Station.	Spalato, Dalmatia.....	



## AUSTRIA-HUNGARY—Continued.

Station.	Location.	Director.
Seed Control Station of the State Agricultural High School.	Tabor, Bohemia .....	Prof. Dr. Fr. Silensky.
Station for the Analysis of Commercial Fertilizers of the State Agricultural High School.	.....do .....	Prof. Franz. Farsky.
Agricultural Chemical Experiment Station of the State Agricultural High School.	Tetschen—Liebwerd, Bohemia.	Prof. Aug. Leydhecker.
Experiment Station for Flax Growing.....	Trautenau.....	Ludw. Langer.
Seed Control Station for the Winter School of Agriculture.	Troppau, Silesia .....	Otto Kambersky.
Agricultural Experiment Station.....	Ungar-Altenburg ...	Prof. Dr. Kosutany.
Seed Control Station.....	.....do .....	Prof. G. Linhart.
Station for Testing Agricultural Implements.	.....do .....	Prof. V. Thallmeyer.
Imperial Royal Agricultural Botanical Seed Control Station.	Vienna .....	Dr. Th. Ritter v. Weinzierl.
Chemical Technical Experiment Station of the Central Society for the Beet Sugar Industry in the Austrian Empire.	.....do .....	Friedrich Strohmer.
Imperial Royal Agricultural Chemical Experiment Station.	.....do .....	Dr. F. W. Dafert.
Society for the Encouragement of Agricultural Experimental Methods in Austria.	9-3 Garnisongasse, No. 4, Vienna.	Prof. Dr. Ad. Ritter v. Liebenberg.
Austrian Experiment Station of Brewing and Malting.	Vienna .....	Prof. Franz. Schwachhöfer.

## BELGIUM.

State Analytical Laboratory.....	Antwerp .....	D. Crispo.
Agricultural Laboratory.....	Courtroi .....	D'Houdt.
State Analytical Laboratory.....	Gand .....	Nyssens.
State Analytical Laboratory.....	Gembloux .....	Masson.
Agricultural Experiment Station.....	.....do .....	A. Petermann.
State Analytical Laboratory.....	Hasselt .....	Mercier.
State Analytical Laboratory.....	Liege .....	M. de Molinari.
State Analytical Laboratory.....	Louvain .....	J. Graftiau.
State Analytical Laboratory.....	Mous .....	Warsage.
Agricultural Laboratory.....	Roulers.....	Van der Berghe.
Agricultural Laboratory.....	St. Nicolas.....	Dr. Wodon.

## BRAZIL.

Agronomical Institute of São Paulo .....	Campinas.....	Gustavo R. P. d'Utra.
Agricultural Experiment Station.....	Rio de Janeiro.....	Domingos H. Braune.
Agricultural Institute.....	Itabira-de-Mata-Deutero.	

## BRITISH HONDURAS.

Botanical Station .....	Belize .....	E. L. F. Campbell.
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## BRITISH WEST INDIES.

Government Laboratory .....	Antigua .....	
Botanical Station .....	Dodd's Reformatory, Barbados.	J. R. Bovell.
Jamaica Agricultural Society.....	Kingston, Jamaica....	C. A. Douet.
Botanical Station .....	St. Lucia.....	
Botanical Station .....	St. Vincent .....	Henry Powell.

## BULGARIA.

Experiment Station of the Agricultural School..	Pleven.....	
Experiment Station of the Agricultural School..	Rustchuk.....	
Experiment Station of the Agricultural School..	Sadowa.....	

## CANADA.

Station.	Location.	Director.
Experimental Farm.....	Agassiz, British Columbia.	Thos. A. Sharpe.
Qu'Appelle Station.....	Assa.	
Experimental Farm.....	Brandon, Manitoba...	S. A. Bedford.
Experimental Farm.....	Agricultural College, Guelph, Ontario.	James Mills.
Dairy School.....	Hyacinth, Quebec....	
Experimental Farm.....	Indian Head, Northwest Territory.	Angus Mackay.
Dairy School Branch School of Mining and Agriculture.	Kingston, Ontario....	
Experimental Farm for Maritime Provinces, Department of Agriculture.	Nappan, Nova Scotia..	
Central Experimental Farm.....	Ottawa.	Wm. Saunders.
Wellington Station.....	Charlottetown, Prince Edward Island.	
Nova Scotia School of Horticulture.....	Wolfville.....	T. C. Sears.

## CAPE COLONY.

Analytical Government Laboratory.....	Cape Town.....	Chas. F. Juritz.
Government School of Agriculture.....	Somerset East.....	J. H. Overman.
Government School of Agriculture and Viticulture.	Stellenbosch.....	F. Biersch.

## CHINA.

Botanical and Afforestation Garden.....	Hongkong.....	
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## DENMARK.

Moor Experiment Station of the Danish Moor Society.	Aarhus.....	Ing. Claudi Westh.
Experiment Station.....	Ascov.....	F. Hansen.
Experiment Station.....	Bester-Hassing.....	A. J. Hansen.
Carlsberg Physiological Laboratory.....	Copenhagen.....	Prof. Dr. E. C. Hansen.
Physiological Laboratory of Agricultural High School.	do.....	Johannsen.
Carlsberg Chemical Laboratory.....	do.....	Prof. Dr. Joh. Kjeldahl.
Physiological Laboratory of University.....	do.....	R. Pedersen.
Seed Control Station.....	do.....	O. Rostrup.
Chemical Laboratory and Control Station.....	do.....	Prof. V. Stein.
Experiment Laboratory.....	do.....	Prof. Dr. v. Storch.
Experiment Station.....	Lungby.....	K. Hansen.
Experiment Station.....	Tystofte.....	P. Nilsen.

## ENGLAND.

Agricultural Department University College of Wales.	Aberystwyth.....	Prof. T. Parry.
Agricultural College.....	Aspatria (Carlisle)...	Smith Hill.
University College of North Wales.....	Bangor.....	Professor Winter.
Bath and West and Southern Counties Society.	4 Terrace Walk, Bath.	W. Carruthers.
Cambridge and Counties Agricultural Education Committee.	Cains College, Cambridge.	T. B. Wood.
Essex Technical Laboratories, Essex County Council.	Chelmsford.....	David Houston.
Royal Agricultural College and Farm.....	Cirencester.....	Prof. E. Kinch.
Technical Instruction Committee, Cheshire County Council.	Crewe.....	G. Dixon.
Durham College of Science.....	New Castle upon-Tyne	Prof. Wm. Somerville.
Royal Botanic Gardens.....	Kew.....	W. Thiselton Dyer.
Yorkshire College.....	Leeds.....	R. W. Hayden.
Department of Botany, University of London.	London.....	Prof. J. Reynolds Green.
University College.....	Nottingham.....	M. J. R. Dunstan.
University Extension College.....	Reading.....	Douglas A. Gilchrist.
Agricultural Experiment Station.....	Rothamsted.....	Sir John B. Lawes, Sir Henry Gilbert.
East Sussex Agricultural College.....	Uckfield.....	W. J. Malden.

## ENGLAND—Continued.

Station.	Location.	Director.
Dawntsey's Agricultural School.....	West Lavington De- vizes.	F. W. Long.
Agricultural Experiment Station of Royal Agri- cultural Society of England.	Woburn .....	Dr. J. A. Voelcker.
Seed Control Station of Royal Agricultural So- ciety of England.	Woburn .....	W. Carruthers.
Experimental Fruit Farm .....	do .....	The Duke of Bedford.
The Southeastern Agricultural College.....	Wye, Kent .....	A. D. Hall.

## FINLAND.

Agricultural Chemical Experiment and Seed Control Station.	Aabo .....	Dr. Ernst Löthner.
Agricultural Chemical Experiment Station.....	Helsingfors.....	
Mustiala Agricultural and Dairy Institute.....	Mustiala.....	Dr. Gosta Grotenfelt.

## FRANCE.

Agricultural Station.....	Amiens.....	Roger.
Station of Vegetable Physiology of Villa-Thuret.	Antibes .....	Ch. Naudin.
Agricultural Station.....	Arras .....	A. Pagnoul.
Agricultural Station.....	Auxerre .....	Nantier.
Agricultural Station.....	Avignon .....	Roger.
Station of Maritime Zoology .....	de Banyuls .....	Lacaze-Duthiers.
Agricultural Laboratory .....	Beauvais .....	
Agricultural Laboratory.....	Béthune .....	Ponnelle.
Agricultural Laboratory.....	Blois .....	Trouard-Riolle.
Agricultural Station.....	Bordeaux .....	W. Gayon.
Irrigation Station.....	Boulogne .....	Canu.
Dairy Station.....	do .....	Sauvage.
Agricultural Station.....	Boulogne sur Mer .....	Vnaflart.
Agricultural Laboratory .....	Bourg .....	L. J. Grandvoinnet.
Agricultural Station.....	Bourges .....	L. Peneau.
Agricultural Station.....	Caen .....	Prof. M. Louise.
Agricultural Station.....	Cappelle .....	F. Desprez.
Agricultural Laboratory .....	Chalons .....	Deuté.
Agricultural Station.....	Chartres .....	C. V. Garola.
Agricultural Station.....	Chateauroux .....	Alla.
Agricultural Station.....	Clermont-Ferrand .....	P. Parmentier.
Agricultural Station.....	Cluuy .....	Bernard.
Agricultural Laboratory .....	do .....	Bernard.
Agricultural Laboratory.....	Cognac .....	A. Baudouin.
Station for Viticulture.....	do .....	Gontrand.
Agricultural Station.....	Commercy .....	Prudhomme.
Agricultural Station.....	Dijon .....	Reconra.
Zoological Laboratory .....	Endoume .....	A. Marion.
Agricultural Laboratory .....	Foix .....	Soula.
Station of Vegetable Physiology.....	Fontainebleau.....	G. Bonuier.
Agricultural Laboratory .....	Granville .....	Laurot.
Agricultural Station.....	Grignon .....	P. P. Deléchain.
Agricultural Station.....	do .....	A. Hébert.
Laboratory Animal Physiology.....	Joinville .....	Mallèvre.
Agricultural Station.....	Juvisy .....	C. Flammarion.
Agricultural Experiment Station.....	Laon .....	Gaillot.
Agricultural Laboratory .....	Laval .....	Leizour.
Agricultural Station.....	Lézardeau .....	G. Paturel.
Agricultural Experiment Station.....	Lille .....	A. Dubernard.
Agricultural Experiment Station.....	Lyons .....	L. Vignon.
Dairy Station.....	Mamrolle .....	Martin.
Station for Sericulture.....	Manosque .....	Brandi.
Agricultural Station.....	Marscilles .....	Gasseud.
Station for Analysis of Fertilizers .....	do .....	E. Millian.
Agricultural Station.....	Melun .....	A. Vivier.
Station of Vegetable Physiology.....	Mendon .....	M. Berthelot.
Agricultural Station.....	Montpellier.....	H. Lagatu.
Station for Sericulture.....	do .....	Lambert.
Enological Station.....	do .....	Raos.
Station for Viticulture.....	do .....	P. Viala.
Agricultural Laboratory .....	Morlaix .....	M. Libert.
Agricultural Station.....	Naucy .....	Colomb-Pradel.
Agricultural Station.....	Nantes .....	A. Andouard.
Station for Enology, or Station for Study of Wine Making.....	Narbonne.....	L. Semichon.
Agricultural Laboratory.....	Nevers .....	Maucheron.
Agricultural Laboratory.....	Nimes .....	Chauzit.

## FRANCE—Continued.

Station.	Location.	Director.
Station for Oenology, or Station for Study of Wine Making.....	Nîmes.....	Kayser.
Station for Dairy Investigation.....	Orléans.....	E. Duclaux.
Agricultural Laboratory.....	Paris.....	Duplessis.
Laboratory for Investigations of Useful Insects.....	16 Rue Claude, Bern-	Blanchard.
Station of Agricultural Entomology.....	nard, Paris.	Brocchi.
Laboratory of Fermentations.....	Paris.....	Duclaux.
Agricultural Experiment Station de l'Est.....	do.....	Prof. L. Grandeau.
Laboratory Vegetable Pathology.....	do.....	Prillieux.
Station for Testing Agricultural Implements.....	47 Rue Jenner, Paris.	M. Ringelmann.
Station for Testing Seeds.....	Paris.....	E. Schribaux.
Agricultural Station.....	Poitte, Vendée.....	Marchal.
Agricultural Laboratory.....	Poitiers.....	Roux.
Agricultural Laboratory.....	Remiremont.....	Devouges.
Agricultural Station.....	Rennes.....	G. Lechartier.
Agricultural Laboratory.....	Reims.....	Coritte.
Agricultural Station.....	La Roches sur You.....	M. Vanchev.
Agricultural Station.....	Rouen.....	Houzeau.
Laboratory of Agricultural Entomology.....	do.....	Noël.
Agricultural Laboratory.....	St. Etienne.....	Babin.
Agricultural Laboratory.....	Tours.....	Robin.
Agricultural Station.....	Toulouse.....	Fabre.
Agricultural Laboratory.....	Valenciennes.....	Que-not.
Agricultural Laboratory.....	Versailles.....	Rivière.
Laboratory of Horticultural Research.....	do.....	Petit.
Station for Viticulture.....	Villefranche.....	P. M. Vermorel.

## GERMANY.

Seed Control Station.....	Arendsee, i. Sach.....	Dr. P. Herberg.
Experiment Station.....	Angsburg, i. Bay.....	Dr. M. Hagen.
Agricultural Experiment Station.....	Bayreuth, i. Bay.....	
Experiment Station and School for Brewing (sec-	Invalidenstrasse 42.	
tion of Institute for Brewing and Distilling).	Berlin, N.....	
Institute for Brewing and Distilling (six sec-	Seestrasse, Berlin, N.....	Prof. Dr. Max Delbrück.
tions).		
Experiment Station of the German Agricultural	Berlin.....	Dr. Thiesing.
Society.		
Dual Agricultural Experiment Station.....	Bernburg.....	Prof. Dr. H. Wilfarth.
Agricultural Experiment Station.....	Bonn.....	Prof. Dr. A. Stutzer.
Experiment Station.....	Braunschweig.....	Prof. Dr. Hugo Schultze.
Moor Experiment Station.....	Bremen.....	Prof. Dr. M. Fleischer.
Seed Control Station of the Agricultural School.....	Braunsvörde, i. Han.....	Carl Gerdess.
Agricultural Botanical Experiment and Seed	Matthiasplatz 6, Bres-	Prof. Dr. Eidam.
Control Station.	lau.....	
Agricultural Experiment and Control Station.....	Breslau.....	Dr. B. Schulze.
University Institute of Animal Chemistry.....	do.....	Prof. Dr. H. Weiske.
Experiment Station.....	Coethen.....	Dr. F. Heidepriem.
Imperial Agricultural Experiment Station.....	Colmar, i. E.....	Prof. Dr. Max Barth.
Agricultural Experiment Station.....	Dahme, i. P.....	Prof. Dr. R. Ulbricht.
Agricultural Experiment and Seed Control Sta-	Danzig, i. P.....	Dr. M. Schmoeget.
tion.		
Experiment Station of the Agricultural Society	Darmstadt.....	Prof. Dr. P. Wagner.
of Hesse.		
Experiment Station of the Imperial Royal Vet-	Dresden.....	
erinary High School.	do.....	Prof. Dr. Ellenberger.
Chemical and Physiological Experiment Station	do.....	
of the High School of Veterinary Medicine.	do.....	Prof. Dr. O. Drude.
Royal Saxon Experiment Station for Plant Cul-		
ture at Botanical Garden.		
Agricultural Chemical Laboratory.....	Dobelin, i. Sach.....	Prof. Dr. W. Wolf.
Control Station for Fertilizers, Feeding Stuffs,	Ebstorf, i. Han.....	Dr. F. Bente.
etc.		
Chemical Experiment Station.....	Eisfeld.....	
Control Station.....	Eldena, i. Pom.....	Arn. von Homeyer.
Experiment Station for Plant Physiology, Fruit	Geisenheim.....	Prof. Dr. Jul. Wortmann.
and Grape Culture, and Station for Pure Yeasts.		
Control Station for Fertilizers, Feeding Stuffs,	Göttingen.....	Dr. G. Kalb.
etc.		
Agricultural Experiment Station.....	do.....	Prof. Dr. F. Lehmann.
Laboratory and Experimental Field of the Uni-	do.....	Prof. Dr. C. von Seelhorst.
versity Agricultural Institute.		
Experiment Station for Plant Protection.....	Halle.....	Dr. M. Hollrung.
Physiological Laboratory Experimental Field	do.....	Prof. Dr. J. Kühn.
and Zoological Garden for Domestic Animals		
of the Agricultural Institute of the University.		
Agricultural Chemical Experiment Station of	do.....	Prof. Dr. Max Macrcker.
Department of Agriculture.		



## GERMANY—Continued.

Station.	Location.	Director.
Agricultural Experiment Station of the Central Society of Agriculture.	Halle .....	
Agricultural Botanical Experiment Station .....	Hamburg .....	Dr. Oscar Burchard.
Section for Seed Control of Botanical Museum and Laboratory for the Study of Commercial Products.	.....do .....	Dr. A. Voight.
Experiment Station for the Study of Agriculture and Plant Growth.	Hamburg-Horn .....	Dr. Ullman.
Agricultural Experiment Station .....	Hildesheim .....	Prof. Dr. Karl Müller.
Royal Wurttemberg Seed Testing Station .....	Hohenheim .....	Prof. Dr. O. Kirchner.
Experiment Station .....	.....do .....	Prof. Dr. A. Morgan.
Agricultural Experiment Station .....	Interburg, i. P. ....	Dr. W. Hoffmeister.
University Experiment Station .....	Jena .....	Prof. Dr. H. Settegast.
Grand Ducal Agricultural Experiment Station .....	Karlsruhe .....	Prof. Dr. L. Klein.
Agricultural Chemical Experiment Station .....	Kempen, a. Rh. ....	Dr. Gottfr. Fassbender.
Agricultural Chemical Experiment Station .....	Karlsruhe .....	Prof. Dr. J. Nessler.
Agricultural Experiment Station .....	Kiel .....	Prof. Dr. A. Emmerling.
Seed Control Station .....	.....do .....	Prof. Dr. H. Rodewald.
Experiment Station and Dairy School .....	Kleinhof-Tapiau, i. P.	Dr. K. Hütcher.
Dairy Laboratory of the University Agricultural Institute.	Königsberg .....	Prof. Dr. Alex. Backhaus.
Agricultural Experiment Station .....	.....do .....	Prof. Dr. G. Klien.
Agricultural Experiment and Seed Control Station.	Köslin, i. Pom. ....	Dr. P. Baessler.
Experiment and Seed Control Station .....	Landshut, i. Bay. ....	Dr. Joh. Aug. Botz.
Botanical Garden for Economic Plants and Experimental Field of the Agricultural School.	Liegnitz .....	Dr. Wübbe.
Agricultural Experiment Station .....	Magdeburg .....	
Agricultural Chemical Experiment and Seed Control Station.	Marburg .....	Prof. Dr. Th. Dietrich.
Royal Saxon Agricultural Experiment Station .....	Möckern .....	Dr. O. Kellner.
Station for Scientific Brewing .....	Munich .....	Prof. L. Anbry.
Laboratory for Agricultural Physics and Physiology.	.....do .....	Prof. Dr. E. Wollny.
Agricultural Central Experiment Station of Bavaria.	.....do .....	Prof. Dr. Franz Soxhlet.
Agricultural Experiment Station .....	.....do .....	Dr. E. Haselhoff.
Agricultural Experiment Station .....	Münster .....	Prof. Dr. J. König.
Experiment and Control Station .....	Oldenburg .....	Dr. P. Petersen.
Experiment Station .....	Pommritz, i. Sach. ....	Prof. Dr. G. Loges.
Animal Physiological Institute of the Agricultural Academy.	Poppelsdorf .....	Prof. Dr. Osc. Hagemann.
Experiment Station of Agricultural Academy .....	.....do .....	
Agricultural Experiment Station .....	Posen-Jersitz .....	Dr. Gerlach.
Dairy Institute .....	Proskau .....	Dr. J. Klein.
Experiment Station for Plant Physiology of the Royal Pomological Institute.	.....do .....	Prof. Dr. R. Stoll.
Agricultural Experiment and Seed Control Station.	Regenwalde .....	
Experiment Station .....	Rostock .....	Prof. Dr. R. Heinrich.
Imperial Agricultural Experiment Station .....	Rufach, i. E. ....	
State Agricultural Experiment Station .....	Speier, i. Bay. ....	Dr. A. Helenke.
Royal Station for Plant Physiology and Seed Control.	Tharand, i. Sach. ....	Prof. F. Nobbe.
Agricultural Experiment Station .....	Triesdorf, i. Bay. ....	Prof. Dr. Ph. Schreiner.
Agricultural Experiment Station .....	Usambara (German East Africa).	
Laboratory of the Royal Academy of Agriculture and Brewing.	Weihenstephan .....	Dr. Kraus.
Experiment Station .....	Wiesbaden .....	Prof. Dr. H. Fresenius.
Dairy Institute .....	Wreschen, Posen .....	
State Agricultural Experiment Station .....	Würzburg, i. Bay. ....	Dr. Th. Omeis.
Experiment Station for Grape Growing and Inspection of Foods.	.....do .....	

## HOLLAND.

Agricultural Experiment Station .....	Goes .....	Dr. A. J. Swaving.
Agricultural Experiment Station .....	Groningen .....	Dr. Sjollem.
Agricultural Experiment Station .....	Hoorn .....	Dr. K. H. M. Van der Zande.
Bacteriological Section of the Agricultural Experiment Station.	.....do .....	F. M. J. Boekhout.
Agricultural Experiment Station .....	Maastricht .....	
Central Agricultural Experiment Station .....	Wageningen .....	Prof. Dr. Adolph Mayer.
Seed Control Station of Central Agricultural Experiment Station.	.....do .....	F. F. Bruijning.

## INDIA.

Station.	Location.	Director.
Experimental Farm .....	Burdwan, Bengal....	N. N. Banerjee.
Experimental Farm .....	Cawnpore, Northwest Province and Oudh.	J. E. Meston.
Experimental Farm .....	Dumraon, Bengal....	N. N. Banerjee.
Division of Crop Experiments in Assam .....	Golaghet .....	L. J. Kershaw.
Experimental Farm .....	Hyderabad, Sind....	F. M. Khambatta.
Experimental Farm .....	Khandesh, Bombay Presidency.	J. Mollison.
Agricultural Experiment Station.....	"Lasbio" N. Shan States, Burmah.	
Experimental Farm .....	Nagpur, Central Prov- inces.	R. H. Craddock.
Experimental Farm .....	Poona, Bombay Presi- dency.	J. W. P. Muir-Mackenzie.
College of Agriculture .....	Saidapet .....	W. Kees.
Experimental Farm .....	Silpur, Bengal.....	B. C. Basu.
Experimental Farm .....	Surat, Bombay Presi- dency.	J. W. P. Muir-Mackenzie.
Division of Experimental Cultivation in the Southern Shan States.	Taunggyi .....	A. H. Hildebrand.

## IRELAND.

Agricultural Chemical Association of Ulster ....	Belfast .....	Professor Hodges.
Royal Dublin Society (this society carries on ex- periments on different selected estates).	Kildare street, Dublin.	
Chemical Laboratory, Glesnevin Agricultural College.	Dublin .....	Professor Carroll.

## ITALY.

Oenological Experiment Station .....	Asti .....	Professor Comboni.
Agricultural Chemical Laboratory .....	Bologna .....	Prof. Ad. Casati.
Agricultural Chemical Laboratory .....	Caserta .....	Prof. M. Coppola.
Agricultural Experiment Station .....	do .....	
Agricultural Experiment Station .....	Florence .....	Prof. Ritter E. Bechi.
Entomological Experiment Station .....	do .....	Prof. Targioni-Tozzetti.
Entomological Station .....	do .....	Do.
Agricultural Chemical Experiment Station .....	Forli .....	Prof. Dr. Aless. Pasqualini.
Agricultural Experiment Station .....	do .....	Do.
Experiment Station for Cheese Making .....	Lodi .....	Prof. Carlo Besana.
Agricultural Chemical Experiment Station .....	Milan .....	Prof. A. Menzoki.
Agricultural Chemical Experiment Station .....	Modena .....	Professor Cugini.
Sericulture Station .....	Padua .....	Prof. Dr. Euriis Verson.
Agricultural Chemical Experiment Station .....	Palermo .....	Dr. Oliveri.
Agricultural Experiment Station .....	do .....	Do.
Cryptogamic Laboratory .....	Pavia .....	Prof. Giov. Briosi.
Agricultural Chemical Laboratory .....	Perugia .....	Prof. Gins. Bellucci.
Agricultural Chemical Laboratory .....	Pesaro .....	Prof. Dr. T. Duprè.
Agricultural Chemical Laboratory .....	Pisa .....	Prof. J. Sestini.
Entomological Laboratory .....	Portici, near Naples ..	
Experiment Station for Vegetable Pathology ..	Rome .....	Prof. G. Comboni.
Agricultural Chemical Experiment Station ..	do .....	Prof. P. Freda.
Agricultural Chemical Laboratory .....	Siena .....	Prof. C. Ciannetti.
Agricultural Chemical Experiment Station ..	Turin .....	Dr. M. Zecchini.
Agricultural Experiment Station .....	do .....	Do.
Agricultural Chemical Experiment Station ..	Udine .....	Prof. G. Nallino.

## JAPAN.

Tokai Agricultural Experiment Station .....	Aichi .....	Dr. S. Machida.
Ritnu Agricultural Experiment Station .....	Akita .....	Dr. T. Onda.
Agricultural Experiment Station .....	Gumaken .....	
Stokuroku Agricultural Experiment Station ..	Ishikawa .....	Dr. Y. Kagami.
Kinsiu Experiment Station .....	Kumamoto .....	Dr. Y. Otsuka.
To-o Agricultural Experiment Station .....	Miyaji .....	Dr. K. Ushimura.
Central Agricultural Experiment Station .....	Nishigahara, near To- kio.	Dr. J. Sawano.
Sanyo Agricultural Experiment Station .....	Nunatagori Hiro- shima.	Dr. S. Shinjo.
Kinai Agricultural Experiment Station .....	Osaka .....	Dr. K. Okada.
Experimental Farm of Imperial Agricultural College.	Sapporo .....	

## JAPAN—Continued.

Station.	Location.	Director.
Sanin Agricultural Experiment Station .....	Shimana .....	Dr. S. Kikukawa.
Agricultural Chemical Laboratory of Agricultural Institute, University of Japan.	Tokio .....	Dr. Oscar Loew.
Shikoku Agricultural Experiment Station.....	Tokushima .....	Dr. T. Ichichi.

## JAVA.

Experiment Station of the Botanical Garden ....	Buitenzorg .....	Dr. J. M. Janse.
West Java Sugar Cane Experiment Station .....	Kagok-Tegal .....	H. C. Prinsen-Geerligs.
Indigo Experiment Station .....	Klatten .....	I. J. Hazewinkel.
East Java Sugar Cane Experiment Station .....	Passoeroean .....	J. D. Kobus.

## MAURITIUS.

Agricultural Station .....	Reduit, Mauritius ....	W. T. A. Edwards.
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## NEW SOUTH WALES.

Experimental Farm .....	Bathurst .....	J. S. Thompson.
Experimental Farm .....	Bomen .....	
Experimental Farm .....	Booral .....	
The Hawkesbury Agricultural College and Experimental Farm.	Ham Common, Richmond.	
Experimental Farm .....	Murrumbidgee .....	
Irrigation Experimental Field .....	Pera Bore .....	

## NEW ZEALAND.

Canterbury Agricultural College .....	Lincoln .....	
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## NORWAY.

Chemical Laboratory of Aas Agricultural College.	Aas .....	Dr. John Sebelien.
Seed Control Station .....	Christiania .....	Bastian Larsen.
State Meat-Control Station .....	.....do .....	A. Lo.
Veterinary Pathological Institute .....	.....do .....	Dr. Malm.
Agricultural Chemical Control Station .....	.....do .....	Fr. Werenkiold.
Plant Culture Section of Royal Society of Norway.	Vel-Aas .....	Bastian Larsen.

## PORTUGAL.

Agricultural Experiment Station .....	Coimbra .....	Ant. Aug. Baptista.
Agricultural Experiment Station .....	Evora .....	Antonio Gomes Ramalho.
Agricultural Experiment Station .....	Lisbon .....	Ramiro Larcher Marçal.
Chemical Laboratory for the Inspection of Wines and Oils.	.....do .....	Amando De Seabra.
Agricultural Experiment Station .....	Porto .....	Guilh. Adr. Da Silveira.

## QUEENSLAND.

Agricultural College and Experimental Farm ...	Gatton .....	Edward M. Shelton.
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## ROUMANIA.

Chemical Laboratory and Experiment Station for Tobacco Culture.	Bucharest .....	Dr. Maximilian Popovici.
Royal Agricultural Experiment Station .....	.....do .....	Cornelius Roman.

## RUSSIA.

Station.	Location.	Director.
Agricultural Experimental Field.....	Estate of Sgnrovka, Bodrowiz, Kiev.	K. J. Denissenko.
Agricultural Experiment Station of the Imperial Free Economical Society.	Estate of J. N. Tolstoi Bogoduchov, Gouv. Orel.	
Experimental Field of the Charkov Agricultural Society.	Estate of Chotensk, Gouv. Charkov.	
Agricultural Experimental Field of the Agricultural School.	Cherson .....	Tarchov.
Batistschewo Agricultural Experiment Station.	Dorogobnusch, Gouv. Smolensk.	N. A. Diakonov.
Wjatnaschen Semstwo Agricultural Experimental Field.	Glasow.....	
Agricultural Experimental Field.....	Estate of Vissokoji, Jaroslaw.	N. P. Sabanejev.
Cotton Experimental Field.....	Karajas, Transcaucasus.	N. P. Taratinov.
Seed Control Station of the Society of Agricultural Arts.	Kiev.....	J. Bardsilewski.
Flax Experiment Station .....	Estate of Groditschsch, Kostroma.	Kornev.
Ploti Agricultural Experiment Station.....	Krutijs, Gouv. Podoilen.	Prince Trubatzkoi.
Agricultural Experimental Field.....	Estate Novotavolschanka, Gouv. Kursk.	
Tobacco Experimental Plantation .....	Lochvitz, Gouv. Poltava.	P. M. Lomonossov.
Experimental Field of the Agricultural Society for Culture of Oil Bearing Seeds and Grain.	.....do.....	
Agricultural Experimental Field.....	Petrovskoje-Rasumovskoje Estate, Moscow.	Wm. R. Williams.
Agricultural Experimental Field.....	Nijn i-Novgorod, Semstwo, near Muraschkins.	Th. Gorbatsowski.
Experimental Field of the Dons Agricultural Society.	Novotschirkask .....	
Experimental Field of the Agricultural and Forestry Academy.	Novo-Alexandria, Gouv. Lublin.	Prof. Budrin.
Experimental Field of the Imperial Society of South Russia.	Odessa .....	V. G. Rotmistrov.
Agricultural Experiment Field.....	Omsk, Siberia.....	Prince Kudashev.
Agricultural Experiment Field.....	Orlov .....	
Experiment Field of the Agricultural Society...	Poltava.....	W. N. Diakov.
Flax Experiment Station .....	Estate of Dirini Gorki, Porechov, Gouv. Pskov.	Mjasnikov.
Agricultural Experiment Field.....	Estate of Derebtschin, Rachna, Kiev.	R. Lubanski.
Agricultural Chemical Experiment and Seed Control Station of the Polytechnicum.	Riga .....	Prof. Dr. Geo. Thoms.
Horticultural Experimental Field .....	Estate of Nengoje Selo, Rostov, Gouv. Jaroslov.	Oschannin.
Sapolje Agricultural Experiment Station.....	Sapolje, near Luga, Gouv. St. Petersburg.	J. J. Sfochozki.
Agricultural Experiment Station.....	Estate of Mochovoje, Schatilowskaja, Gouv. Tula.	G. Nefedof.
Agricultural Experiment Field...	Semstwo, Wjatna .....	
Wjatnaschen Agricultural Experiment Station	.....do.....	S. N. Kosserev.
Agricultural Experimental Seed Control and Meteorological Station.	Sobieszyn, near Iwanogorod, Poland.	A. Sempolowski.
Horticultural and Agricultural Experiment Station.	Sochi, Caucasus.....	R. Garbe.
Seed Control Station of Royal Botanical Garden.	St. Petersburg .....	J. G. Klinge.
Agricultural Chemical Laboratory of Forestry Institute.	.....do.....	Prof. Kossowitch.
Imperial University, St. Petersburg.....	.....do.....	Prof. D. M. v. Nencki.
Agricultural Chemical Laboratory .....	Strelnik [Parrewe near Depednrci], Kiev.	
Horticultural and Agricultural Station.....	Suchum Kale, Caucasus.	Chancellor Tatarinov.
Agricultural Experimental Plantation .....	Tschkent.....	Chodassewitsch.
Agricultural Chemical Experiment Station.....	Tiflis Soalo .....	
Seed Control Station of the Imperial Agricultural Society.	Tver.....	M. Devel.
Agricultural Experiment Field.....	Urschum .....	
Agricultural Experiment Station.....	Valujka, Gouv. Samara.	W. S. Bogdan.
Agricultural Chemical Station .....	Warsaro .....	
Agricultural Experiment Field .....	Velikoje Selo, Gouv. Jaroslaw.	Jagodin Kuvschinov.



## RUSSIA—Continued.

Station.	Location.	Director.
Agricultural Experiment Station.....	Verhosunji, near Glazov.	
Seed Control Station, Museum of Arts and Agriculture.	Warsaw .....	A. Sempelowski.

## SCOTLAND.

Experiment Station of the Royal Highland and Agricultural Society of Scotland.	Edinburgh .....	Dr. A. P. Aitken.
Seed Control of the Highland and Agricultural Society of Scotland.	.....do .....	Dr. McAlpine.
The Glasgow and West of Scotland Technical College.	Glasgow .....	R. Patrick Wright.
Agricultural Research Association of the North Eastern Counties (carries on experiments at suitable farms).	Glasterbury, Aberdeen.	Thos. Jamieson.
Stewartry of Kirkcudbright Dairy Association .	Kirkcudbright .....	J. R. Campbell.

## SOUTH AUSTRALIA.

Central Agricultural Bureau .....	Adelaide .....	John A. Cockburn.
Agricultural College and Experimental Farm...	Roseworthy .....	William Lowrie.

## SPAIN.

Oenological Station .....	Alicante .....	
Oenological Station .....	Ciudad Real .....	
Oenological Station .....	Haro .....	
Experiment Station for Vegetable Pathology...	Madrid .....	Prof. C. Ascarate.
Central Experiment Station .....	.....do .....	Prof. Jose Marti.
Experimental Station of Agricultural High School.	.....do .....	Prof. Josef Hurtado de Mendoza.
Analytical Laboratory of Agricultural High School.	.....do .....	A. Dorransoro.
Viticultural Experiment Station .....	.....do .....	
Oenological Station .....	Valencia .....	
Oenological Station .....	Toro .....	
Sericultural Station .....	Murcia .....	

## SWEDEN.

Seed-Control Station .....	Borås .....	A. W. Essén.
Seed-Control Station .....	Falun .....	
Seed-Control Station .....	Gefle .....	A. Westman.
Seed-Control Station .....	Göteborg .....	J. C. Alén.
Seed-Control Station .....	Halmstad .....	Em. Lyttkens.
Seed-Control Station .....	Hemse .....	T. A. Satervall.
Seed-Control Station .....	Hernösand .....	C. G. Strokirk.
Chemical Station for Agriculture and Manufactures.	Jönköping .....	C. von Feilitzen.
Seed-Control Station .....	.....do .....	Rob Tolf.
Seed-Control Station .....	Kalmar .....	Dr. A. Atterberg.
Seed-Control Station .....	Kristianstad .....	Dr. L. F. Wahlstedt.
Seed-Control Station .....	Linköping .....	C. Ad. Blum.
Seed-Control Station .....	Luleå .....	Dr. Paul Hellström.
Seed-Control Station .....	Lund .....	Dr. B. Jönsson.
Seed-Control Station .....	Molkom, Värmland .....	J. A. Andersson.
Seed-Control Station .....	Oerebro .....	J. Widén.
Seed-Control Station .....	Ope, near Brundö .....	J. F. Broman.
Seed-Control Station .....	Skara .....	O. Nylander.
Station for Vegetable Physiology .....	Albano, Stockholm .....	Prof. Dr. J. Erikson.
Entomological Station, of Frescati .....	.....do .....	Prof. S. Lampa.
Chemical Experiment Station .....	.....do .....	Dr. L. F. Nilson.
Royal Fields of Experiment .....	.....do .....	S. Rhodin.
Botanical Garden .....	Stockholm .....	E. Lindgren.
Seed-Control Station .....	.....do .....	Olaf Stjernquist.
Royal Swedish Academy of Agriculture .....	.....do .....	
Seed-Control Station of the Swedish Seed Association.	Svalöf .....	Dr. H. J. Nilson.
Seed-Control Station .....	Umeå .....	C. N. Pahl.
Seed-Control Station .....	Upsala .....	T. von Post.
Seed-Control Station .....	Westerås .....	Dr. J. O. Bergstrand.

## SWITZERLAND.

Station.	Location.	Director.
Experiment and Control Station of University ..	Bern.....	Dr. Paul Liechti.
Agricultural Experiment Station Agricultural Institute.	Lausanne.....	M. S. Beiler.
Dairy Experiment Station .....	do .....	Martinet.
Viticultural Experiment Station.....	do .....	Prof. Dr. J. Dufour.
Agricultural Chemical Station .....	do .....	Prof. Dr. Dusserre.
Swiss Experiment Station for Brewing .....	Zürich.....	L. Fries.
Swiss Agricultural Chemical Experiment Station.	do .....	Dr. E. A. Grete.
Experiment Station of Pomology, Viticulture, and Horticulture.	Wädenswil, Zürich ..	Prof. Dr. Muller-Thurgau.
Seed-Control Station .....	Zürich.....	Dr. G. Stebler.

## TASMANIA.

Council of Agriculture.....	Hobart .....	T. A. Tabart.
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## TUNIS.

Agricultural Station .....	Tunis.....	E. Bertainchaud.
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## URUGUAY.

School of Agriculture and Experimental Farm.	Toledo.....	
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## VICTORIA.

Botanic Garden.....	Brisbane.....	
Agricultural College and Experimental Farm ...	Duokie .....	
Agricultural College and Experimental Farm ...	Framlingham .....	
Agricultural College and Experimental Farm ...	Longerenong .....	

## WEST AUSTRALIA.

Department of Agriculture.....	Perth.....	L. Lindley-Cowen.
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# LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING 1898.<sup>1</sup>

## ALABAMA COLLEGE STATION.

Date.	Publication.	Title.
1897.		
December.....	Bulletin 88.....	Experiments with Corn.
	Annual Report.....	Tenth Annual Report, 1897.
1898.		
January.....	Circular.....	List of Bulletins and Reports.
January.....	Bulletin 89.....	Experiments with Cotton.
January.....	Bulletin 90.....	I. The Peach Tree Borer. II. The Fruit-Bark Beetle.
February.....	Bulletin 91.....	Cooperative Fertilizer Experiments with Cotton in 1897.
April.....	Bulletin 92.....	Experiments with Lime on Acid Soils.
April.....	Bulletin 93.....	Peanuts, Cowpeas, and Sweet Potatoes as Food for Pigs.
June.....	Bulletin 94.....	Strawberries.
August.....	Bulletin 95.....	Experiments with Oats.
August.....	Bulletin 96.....	Experiments with Crimson Clover and Hairy Vetch.
September.....	Bulletin 97.....	Dairy and Milk Inspection.

## ALABAMA CANEBRAKE STATION.

1895.		
March.....	Bulletin 18.....	Cotton, Corn, Wheat, Forage Crops, and Fruit.
1897.	Annual Report.....	Twelfth Annual Report, 1897.

## ARIZONA STATION.

1897.		
December.....	Bulletin 26.....	Sugar Beet Experiments.
December.....	Bulletin 27.....	Arizona Weather and Climate.
1898.		
March.....	Bulletin 28.....	Salt River Valley Soils.
June.....	Bulletin 29.....	The Date Palm.

## ARKANSAS STATION.

1897.		
November.....	Bulletin 48.....	Strawberries.
	Annual Report.....	Tenth Annual Report, 1897.
1898.		
January.....	Bulletin 49.....	Preliminary Report on Arkansas Seedling Apples.
January.....	Bulletin 50.....	Some Irish Potato Experiments.
May.....	Bulletin 51.....	Methods of Combating Communicable Diseases of Farm Animals.
July.....	Bulletin 52.....	Feeding Value to Steers of Cotton Seed, Ground Cotton Seed, Cotton Meal, and Hulls.
		Effect of Temperature.
September.....	Bulletin 53.....	A Report of Progress of Investigations in the Chemistry of Wheat.

<sup>1</sup> A list of publications issued by the stations prior to January 1, 1892, was published in the Experiment Station Record, Vol. III, p. 937; a list of those issued during 1892 and 1893 in Bulletin 19 of the Office of Experiment Stations, p. 61; a list of those issued during 1894 in Bulletin 23, p. 58; a list of those issued for 1895 in Bulletin 27, p. 59; a list of those issued for 1896 in Bulletin 39, p. 58, and a list of those issued for 1897 in Bulletin 47, p. 57.

## CALIFORNIA STATION.

Date.	Publication.	Title.
1897.		
December 5.....	Bulletin 118.....	Distribution of Seeds and Plants.
December.....	Bulletin 119.....	Vine Pruning.
1898.		
March.....	Biennial Report.....	Partial Report of Work, 1895-1897.
March.....	Bulletin 120.....	The Olive Knot.
August.....	Bulletin 121.....	The Conservation of Soil Moisture and Economy in the use of Irrigation Water.
December.....	Seed Bulletin.....	Distribution of Seeds and Plants.

## COLORADO STATION.

1897.	Annual Report.....	Tenth Annual Report, 1897.
1898.		
February.....	Bulletin 41.....	Blight and Other Plant Diseases.
February.....	Bulletin 42.....	Sugar Beets in Colorado in 1897.
March.....	Bulletin 43.....	I. Colorado Lepidoptera. II. A few New Species of <i>Deltocephalus</i> and <i>Athysanus</i> from Colorado. III. A list of Original Types, etc., in Collection.
March.....	Bulletin 44.....	Further Notes on the Birds of Colorado.
May.....	Bulletin 45.....	The Loss of Water from Reservoirs by Seepage and Evaporation.
June.....	Bulletin 46.....	A Soil Study: Part I. The Crop Grown: Sugar Beets.
July.....	Bulletin 47.....	Colorado's Worst Insect Pests and Their Remedies.
July.....	Bulletin 48.....	Losses from Canals from Filtration or Seepage.
September.....	Bulletin 49.....	Meteorology of 1897, with Illustrations.

## CONNECTICUT STATE STATION.

1897.	Annual Report.....	Twenty-first Annual Report. Part II. Fertilizers. Part III. Mildew of Lima Beans. Prevention of Leaf Blight and Leaf-Spot of Celery. Cause and Prevention of a Fungus Disease of the Apple. Investigations on a Disease of Carnations. Literature of Fungus Diseases. Part IV. Experiments on Tobacco. Availability of Fertilizer-Nitrogen. Commercial Fertilizers for Forcing House Crops. Steam Sterilizer for Soils. Composition of Violet Plants and Flowers. Insect Notes. Analyses of Feeds and of Milk and Butter. Legumin and Other Proteids of Legumin. Proteids of Soy Bean. Feed Tests.
1898.		
April.....	Bulletin 125.....	Preparation and Application of Fungicides.
May.....	Bulletin 126.....	Insecticides: Their Preparation and Use.
May.....	Bulletin 127.....	The Cost of Plant Food in Connecticut. Spring Months of 1898.

## CONNECTICUT STORRS STATION.

1897.		
December.....	Bulletin 18.....	Nitrogenous Feeding Stuffs.
	Annual Report.....	Tenth Annual Report, 1897. Part I.
	Annual Report.....	Tenth Annual Report, 1897.

## DELAWARE STATION.

1897.	Bulletin 36.....	Potash: Its Commercial Relations. Its Agricultural Relations. Chemical Method for its Accurate Estimation in Soil.
	Annual Report.....	Ninth Annual Report, 1897.
1898.		
	Bulletin 37.....	Anthrax: A study of National and of State Legislation on this Subject.
	Bulletin 38.....	Some Principles in Delaware Apple Culture.
	Bulletin 39.....	Sorghum: Its Development as a Commercial Source of Sugar.
	Bulletin 40.....	Soil Bacteria in their Relation to Agriculture, Part I.
	Bulletin 41.....	Pea Canning in Delaware.
December.....	Bulletin 42.....	The European and Japanese Chestnuts in the Eastern United States.



## FLORIDA STATION.

Date.	Publication.	Title.
1898.		
January .....	Bulletin 44.....	Cane. Sirup. Sugar.
March .....	Bulletin 45.....	Three Injurious Insects. Bean Leaf-Roller. Corn Del-phax. Canna Leaf-Roller.
July .....	Bulletin 46.....	The Strawberry Thrips and the Onion Thrips.
September.....	Bulletin 47 .....	Diseases of the Tomato.
	Annual Report .....	Annual Report, 1898.

## GEORGIA STATION.

1897.		
November .....	Bulletin 37.....	Corn Culture.
December.....	Bulletin 38.....	Watermelons.
December.....	Bulletin 39.....	Cotton Culture. Fertilizer Formulas.
1898.		
	Annual Report .....	Tenth Annual Report, 1897.

## IDAHO STATION.

1898.		
	Bulletin 11.....	Smuts and Rusts of Grains in Idaho, and the Most Ap-proved Methods of Dealing with Them.
	Bulletin 12.....	Sugar Beets in Idaho.
	Bulletin 13.....	Meteorology.
	Bulletin 14.....	Twelve of Idaho's Worst Weeds.
July .....	Bulletin 15.....	I. Report for Fiscal Year ending June 30, 1898, with Financial Reports for 1897-98. II. Miscellaneous In-formation.

## ILLINOIS STATION.

1898.		
January .....	Bulletin 49.....	The Sugar Beet in Illinois.
February.....	Bulletin 50.....	The Cost of Production of Corn and Oats in Illinois in 1896.
May .....	Bulletin 51.....	Variations in Milk and Milk Production.
June .....	Bulletin 52.....	Orchard Cultivation.
July .....	Bulletin 53.....	The Chemistry of the Corn Kernel.

## INDIANA STATION.

1897.		
December.....	Bulletin 67.....	Wheat and Corn as Food for Pigs.
	Annual Report .....	Tenth Annual Report, 1897.
1898.		
March .....	Bulletin 68.....	The Sugar Beet in Indiana.
March .....	Bulletin 69.....	Insecticides, Fungicides, and Spraying.
May .....	Bulletin 70.....	The Relation of Water Supply to Animal Diseases.
June .....	Bulletin 71.....	I. Corn Meal and Shorts as Food for Pigs. II. Skim Milk as Food for Young Growing Chickens.
August.....	Bulletin 72.....	Field Experiments with Wheat.

## IOWA STATION.

1897.		
	Bulletin 36.....	I. Soil Moisture. II. Some Botanical Studies on Corn. III. Seed Testing. IV. Leaf Spot Disease of Alfalfa. V. San José Scale. VI. Fresh v. Stripper Cow Butter. VII. Our Hybrid Roses, Gooseberries, and Straw-berries. VIII. Index to Vol. III, Bulletins 25-36, in-clusive.
1898.		
	Biennial Report .....	Biennial Report for 1896 and 1897.
	Bulletin 37.....	Sugar Beet Investigations, 1897.
	Bulletin 38.....	The Russian Thistle.
	Bulletin 39.....	Weeds of Cornfields.

## KANSAS STATION.

Date.	Publication.	Title.
1897.		
July .....	Bulletin 71.....	Experiments with Wheat.
July .....	Bulletin 72.....	Growth of Young Stock.
July .....	Bulletin 73.....	Fruit Notes.
July .....	Bulletin 74.....	Experiments with Oats.
August.....	Bulletin 75.....	Root Development.
	Annual Report .....	Tenth Annual Report, 1897.
1898.		
February.....	Bulletin 76.....	Fifth Report on Kansas Weeds. Vegetative Propagation of Perennial Weeds.
March.....	Bulletin 77.....	Some Insects Injurious to the Orchard.
April.....	Bulletin 78.....	Sugar Beets.
April.....	Bulletin 79.....	Bovine Tuberculosis.
June.....	Bulletin 80.....	Sixth Report on Kansas Weeds. Distribution and Other Notes.
September.....	Bulletin 81.....	Feed and Care of the Dairy Cow.

## KENTUCKY STATION.

1896.		
	Annual Report .....	Ninth Annual Report, 1896.
1897		
December.....	Bulletin 70.....	1. The Woolly Aulic. 2. The Gape Disease of Poultry.
December.....	Bulletin 71.....	Analyses of Commercial Fertilizers: 1. Official Analyses. 2. Analyses of Other Samples.
1898.		
February.....	Bulletin 72.....	Potatoes.
February.....	Bulletin 73.....	Strawberries.
May.....	Bulletin 74.....	1. The Chinch Bug. 2. Earthworms a Source of Gapes in Poultry.
June.....	Bulletin 75.....	Commercial Fertilizers.
August.....	Bulletin 76.....	Do.
September.....	Bulletin 77.....	Wheat.
November.....	Bulletin 78.....	Ginseng- Its Nature and Culture.

## LOUISIANA STATIONS.

1897.	Second series.	
	Bulletin 49.....	Analyses of Commercial Fertilizers and Paris Green.
	Annual Report .....	Tenth Annual Report, 1897.
1898.		
	Bulletin 50.....	Red Rice.
	Bulletin 51.....	Cattle Tick and Texas Fever.
	Bulletin 52.....	Report for 1896 and 1897 of the Horticultural Department of State Experiment Stations.
	Report.....	Geology and Agriculture. IV: A Preliminary Report upon the Bluff and Mississippi Alluvial Lands of Louisiana.

## MAINE STATION.

1897.		
	Annual Report .....	Thirteenth Annual Report, 1897.
1898.		
January.....	Bulletin 41.....	De-horning Cows.
February.....	Bulletin 42.....	Ornamenting Home Grounds.
March.....	Bulletin 43.....	Fertilizer Inspection.
May.....	Bulletin 44.....	Feeding Stuff Inspection.
October.....	Bulletin 45.....	Fertilizer Inspection.
November.....	Bulletin 46.....	Ornamental Plants for Maine.

## MARYLAND STATION.

1897.		
August.....	Bulletin 49.....	Composition of Commercial Fertilizers Sold in this State.
September.....	Bulletin 50.....	Rust and Leopard Spot. Two Dangerous Diseases of Asparagus.
December.....	Bulletin 51.....	Horse Feeding. Tests of the Digestibility of Oats, Corn, Hay, and the New Corn Product.
	Annual Report .....	Tenth Annual Report, 1897.
1898.		
February.....	Bulletin 52.....	Composition of Commercial Fertilizers Sold in this State.
March.....	Bulletin 53.....	Special Investigation of the So-called "New" Horse Disease in Maryland.
March.....	Bulletin 54.....	Tomatoes.
May.....	Bulletin 55.....	The Black Peach Aphid. Cutworms in Young Tobacco. Law Providing for the Suppression and Control of Insect Pests and Plant Diseases in Maryland.

## MARYLAND STATION—Continued.

Date.	Publication.	Title.
1898.		
June .....	Bulletin 56.....	Wheat, Winter Oats, Barley, and Lime Experiments.
August .....	Bulletin 57.....	Report on the San José Scale in Maryland and Remedies for its Suppression and Control.
August .....	Bulletin 58.....	The Hessian Fly and Wheat Diseases.

## MASSACHUSETTS HATCH STATION.

1897.		
November .....	Bulletin 49.....	I. Analyses of Manurial Substances sent on for Examination. II. Analyses of Licensed Fertilizers Collected by the Agent of the Station during 1897.
December .....	Meteorological Bulletin. Annual Report .....	Meteorological Bulletin 108. Tenth Annual Report, 1897.
1898.		
January .....	Bulletin 50.....	The Feeding Value of Salt Marsh Hay.
February .....	Bulletin 51.....	I. Analyses of Manurial Substances sent on for Examination. II. Analyses of Licensed Fertilizers Collected by the Agent of the Station during 1897.
March .....	Bulletin 52.....	Variety Tests of Fruits. Spraying Calendar.
April .....	Bulletin 53.....	Concentrated Feed Stuffs.
July .....	Bulletin 54.....	I. Analyses of Manurial Substances sent on for Examination. II. Analyses of Licensed Fertilizers Collected by the Agent of the Station during 1898.
January-November	Meteorological Bulletins.	Meteorological Bulletins 109 to 119.

## MICHIGAN STATION.

1896.		
November .....	Special Bulletin 2.....	Pests of House and Ornamental Plants.
October .....	Special Bulletin 3.....	Lightning Rods and Protection of Farm Buildings from Lightning. A Good Rod for Five Dollars.
November .....	Special Bulletin 4.....	1. The Apple Orchard. 2. Spraying—Why and How.
December .....	Special Bulletin 5.....	Forecasts of Frosts.
December .....	Special Bulletin 6.....	1. Building Silos. 2. Forage Crops.
	Annual Report .....	Ninth Annual Report, 1896.
1897.		
January .....	Special Bulletin 7.....	A New anger to Fruit Growers.
March .....	Special Bulletin 8.....	Planting Sugar Beets.
June .....	Bulletin 145.....	Fertilizer Analyses.
July .....	Bulletin 146.....	Bacteria and the Dairy.
August .....	Bulletin 147.....	Pasteurization of Milk.
September .....	Bulletin 148.....	Strawberries.
November .....	Bulletin 149.....	Feeding Dairy Cows.
December .....	Bulletin 150.....	Sugar Beets in Michigan in 1897.
December .....	Bulletin 151.....	Raspberries, Blackberries, and Grapes
	Annual Report .....	Tenth Annual Report, 1897.
1898.		
January .....	Bulletin 152.....	Report of South Haven Substation.
February .....	Bulletin 153.....	Vegetable Tests of 1897.
March .....	Bulletin 154.....	Some Experiments in Corn Raising.
March .....	Bulletin 155.....	Spraying Calendar for 1898.
March .....	Bulletin 156.....	Preliminary Report of State Inspector of Nurseries and Orchards, and Laws Relating to the Same.
May .....	Bulletin 157.....	Hog Cholera.
May .....	Bulletin 158.....	Some Experiments with Poultry.
June .....	Bulletin 159.....	A Study of Normal Temperatures and the Tuberculin Test.
June .....	Bulletin 160.....	Some Insects of the Year 1897.
July .....	Bulletin 161.....	Fertilizer Analyses.

## MINNESOTA STATION.

1897.		
December .....	Bulletin 55.....	Grasshoppers, Locusts, Crickets, Cockroaches, etc., of Minnesota.
1898.		
April .....	Bulletin 56.....	Sugar Beets. Summary of Investigations from 1888 to 1898.
June .....	Bulletin 57.....	Fattening Lambs in Winter.
June .....	Bulletin 58.....	Fattening Steers in Winter.
July .....	Bulletin 59.....	Fattening Lambs and Wethers in Winter.
July .....	Bulletin 60.....	Beef Cattle and Swine.

## MISSISSIPPI STATION.

Date.	Publication.	Title.
1897.		
November .....	Bulletin 42.....	Acclimation Fever, or Texas Fever.
	Annual Report.....	Tenth Annual Report, 1897.
1898.		
January 7.....	Special Bulletin 42....	Analyses of Commercial Fertilizers on Sale in the State.
February 15.....	Special Bulletin 43....	" Natural Plant Food;" Claims Made for It and Its Value.
January .....	Bulletin 44.....	Winter Pasture.
February 15.....	Special Bulletin 45....	Analyses of Commercial Fertilizers on Sale in the State.
March .....	Bulletin 46.....	Cooperative Experiments with Small Fruit.
March 25.....	Special Bulletin 47....	Analyses of Commercial Fertilizers on Sale in the State.
May 1.....	Bulletin 48.....	Analyses of Commercial Fertilizers.
June 25.....	Special Bulletin 49....	Analyses of Commercial Fertilizers on Sale in the State.
September.....	Bulletin 50.....	Winter and Summer Pasture in Mississippi.

## MISSOURI STATION.

1897.		
July .....	Bulletin 39.....	Influence of Width of Tire on Draft of Wagons.
October.....	Bulletin 40.....	The Sugar Beet.
	Annual Report .....	Annual Report, 1897.
1898.		
January .....	Bulletin 41.....	The San Jose Scale in Missouri.
April.....	Bulletin 42.....	A New Orchard Pest The Fringed-Wing Apple-Bud Moth.
May .....	Bulletin 43.....	I. Winter Forcing of Asparagus in the Open Field. II. Asparagus Culture for Missouri.

## MONTANA STATION.

1897.		
April .....	Bulletin 14.....	Montana Swine Feeding.
July .....	Bulletin 15.....	Larkspur Poisoning of Sheep.

## NEBRASKA STATION.

1897.		
December 30.....	Bulletin 51.....	Article II. Observations on the Codling Moth.
	Annual Report .....	Eleventh Annual Report 1897.
1898.		
January 11.....	Bulletin 52.....	Cornstalk Disease.
March 31.....	Bulletin 53.....	A Preliminary Report on Experiments with Forage Crops.
June 8.....	Bulletin 54.....	The Effect of Certain Methods of Soil Treatment upon the Corn Crop.
August 20.....	Bulletin 55.....	Ornamental Planting.
August 31.....	Bulletin 56.....	Methods of Tree Planting.

## NEVADA STATION.

1896.		
December.....	Bulletin 34.....	Drinking Water.
December.....	Bulletin 35.....	Hops.
	Annual Report .....	Ninth Annual Report, 1896.
1897.		
December.....	Bulletin 36.....	Some Common Injurious Insects of Western Nevada.
December.....	Bulletin 37.....	Sugar Beets.

## NEW HAMPSHIRE STATION.

1897.		
October.....	Bulletin 47.....	Strawberries in New Hampshire.
November.....	Bulletin 48.....	Ninth Annual Report, 1897.
1898.		
January .....	Bulletin 49.....	The Inspection of Fertilizers in 1897 in Cooperation with the State Board of Agriculture.
February .....	Bulletin 50.....	Dehorning Cattle.
March .....	Bulletin 51.....	Sweet Corn for New Hampshire.
April .....	Bulletin 52.....	Growing Muskmelons in the North.
May .....	Bulletin 53.....	The Farm Water Supply.
June.....	Bulletin 54.....	The Winter Food of the Chickadee.
July .....	Bulletin 55.....	The Feeding Habits of the Chipping Sparrow.
August.....	Bulletin 56.....	Poisonous Properties of Wild Cherry Leaves.



## NEW JERSEY STATIONS.

Date.	Publication.	Title.
1897.		
November 26 .....	Bulletin 124.....	Analyses of Fertilizer Supplies and Home Mixtures. Analyses and Valuations of Commercial Fertilizers and Ground Bone.
November 27 .....	Bulletin 125.....	The San José Scale and How it May be Controlled.
November 29 .....	Bulletin 126.....	Small Fruits.
November 30 .....	Bulletin 127.....	The Prevalence, Cause, and Treatment of Bovine Abor- tion, Milk Fever, and Garget.
December 31.....	Special Bulletin R....	Catalogue of Reports and Bulletins. Index of Reports, 1880-1897.
	Annual Report.....	Eighteenth Annual Report, 1897.
1898.		
February 2 .....	Bulletin 128.....	The Peach Borer. Experiments with Hydraulic Cement.
June 10.....	Bulletin 129.....	The Asparagus Rust; its Treatment and Natural En- emies.
October 10 .....	Bulletin 130.....	Forage Crops.
October 12 .....	Bulletin 131.....	Feeds Rich in Protein. The advantage of a Guaranteed Composition.

## NEW MEXICO STATION.

1897.		
April .....	Bulletin 23.....	Sugar Beets.
August .....	Bulletin 24.....	Life Zones in New Mexico.
	Annual Report.....	Seventh Annual Report, 1897.
1898.		
February .....	Bulletin 25.....	Preliminary Notes on the Codling Moth.
June .....	Bulletin 26.....	New Mexico Sugar Beets, 1897.
June.....	Bulletin 27.....	Report on Plums.

## NEW YORK STATE STATION.

1896.		
	Annual Report .....	Fifteenth Annual Report, 1896.
1897.		
July .....	Bulletin 125.....	Forcing Tomatoes. Comparison of Methods of Training and Benching. Note on a Tomato Disease.
November .....	Bulletin 126.....	Feeding Experiments with Chicks and Capons.
November .....	Bulletin 127.....	Strawberries in 1897.
November .....	Bulletin 128.....	Variety Tests with Raspberries, Blackberries, and Dew- berries.
November .....	Bulletin 129.....	Report of Analyses of Commercial Fertilizers for the Spring of 1897.
December.....	Bulletin 130.....	A Bacterial Disease of Sweet Corn.
December.....	Bulletin 131.....	Results of Oat Smut in 1897.
December.....	Bulletin 132.....	The Source of Milk Fat.
December.....	Bulletin 133.....	Spraying in 1897 to Prevent Gooseberry Mildew.
December.....	Bulletin 134.....	Report of Analyses of Commercial Fertilizers for the Fall of 1897.
December.....	Bulletin 135.....	The Composition and Production of Sugar Beets.
December.....	Bulletin 136.....	Inspection of Nurseries and Treatment of Infested Nurs- ery Stock.
December.....	Bulletin 137.....	Commercial Fertilizers for Potatoes.
December.....	Bulletin 138.....	Experiments and Observations on Some Diseases of Plants.
December.....	Bulletin 139.....	Plant Lice: Descriptions, Enemies, and Treatment.
December.....	Bulletin 140.....	Wood Ashes and Apple Scab.
December.....	Bulletin 141.....	Digestion and Feeding Experiments.
December.....	Bulletin 142.....	Director's Report for 1897.
1898.		
April .....	Bulletin 143.....	Cottonwood Leaf Beetle. Green Arsenite.
September .....	Bulletin 144.....	A Spraying Mixture for Cauliflower and Cabbage Worms.
September .....	Bulletin 145.....	Report of Analyses of Commercial Fertilizers for the Spring of 1898.
November .....	Bulletin 146.....	Some Experiments in Forcing Head Lettuce.
December.....	Bulletin 147.....	Variety Tests of Strawberries, Raspberries, and Black- berries.
1897.	POPULAR EDITION.	
November .....	Bulletin 125.....	Tomato Forcing: Methods of Training and Benching.
November .....	Bulletin 126.....	Ground Grain v. Whole Grain for Chicks and Capons.
December.....	Bulletin 127-128.....	Notes on Small Fruits Grown in 1897.
December.....	Bulletin 130.....	A New Disease of Sweet Corn.
December.....	Bulletin 131.....	Oat Smut and New Preventives.
December.....	Bulletin 132.....	Milk Fat from Fat-Free Food.
December.....	Bulletin 133.....	The best Remedy for Gooseberry Mildew.

## NEW YORK STATE STATION—Continued.

Date.	Publication.	Title.
POPULAR EDITION.		
1897.		
December.....	Bulletin 136.....	Nursery Stock Pests and their Repression.
December.....	Bulletin 137.....	Profitable Potato Fertilizing.
December.....	Bulletin 138.....	Work upon some Diseases of Plants in 1897.
December.....	Bulletin 140.....	Wood Ashes not an Apple Scab Preventive.
December.....	Bulletin 141.....	Some Results in Stock Feeding.
1898.		
April.....	Bulletin 143.....	A Destructive Beetle and a Remedy
September.....	Bulletin 144.....	Combating Cabbage Pests
November.....	Bulletin 146.....	Forcing Head Lettuce; Soils and Fertilizers.
December.....	Bulletin 147.....	Some Good Berries.

## NEW YORK CORNELL STATION.

1896.	Annual Report.....	Ninth Annual Report, 1896.
1898.		
January.....	Bulletin 142.....	The Codling Moth.
February.....	Bulletin 143.....	Sugar Beet Investigations.
January.....	Bulletin 144.....	Notes on Spraying and on the San José Scale.
February.....	Bulletin 145.....	Some Important Pear Diseases.
February.....	Bulletin 146.....	Fourth Report of Progress on Extension Work.
April.....	Bulletin 147.....	Fourth Report upon Chrysanthemums.
May.....	Bulletin 148.....	The Quince Curculio.
June.....	Bulletin 149.....	Some Spraying Mixtures.
July.....	Bulletin 150.....	Tuberculosis in Cattle and its Control.
August.....	Bulletin 151.....	Gravity or Dilution Separators.
October.....	Bulletin 152.....	Studies in Milk Secretion.
October.....	Bulletin 153.....	Impressions of our Fruit-Growing Industries.
November.....	Bulletin 154.....	Tables for Computing Rations for Farm Animals.
December.....	Bulletin 155.....	Second Report on the San José Scale, with Remarks on the Effects of Kerosene on Foliage.
	Annual Report.....	Eleventh Annual Report, 1898.

## NORTH CAROLINA STATION.

1897.		
December 22.....	Bulletin 145.....	Crimson Clover.
December 31.....	Bulletin 146.....	Miscellaneous Farm Bulletin.
	Special Bulletin 48....	Experiment Station Staff. Equipment and Work. Recent Bulletins.
1898.		
June 6.....	Bulletin 147.....	A Study of Lettuces.
June 8.....	Bulletin 148.....	Digestion Experiments. Pasteurization of Milk.
June 11.....	Bulletin 149.....	The Apple in North Carolina.
June 13.....	Bulletin 150.....	Medicinal Plants.
June 17.....	Bulletin 151.....	The Fertilizer Control for 1897.
September 12.....	Bulletin 152.....	Poultry Notes.
December 8.....	Bulletin 153.....	Vinegar Adulteration.
December 17.....	Bulletin 154.....	The Adulteration of Coffee and Tea.
March 12.....	Special Bulletin 49....	Sugar Beets.
October 25.....	Special Bulletin 50....	The Station and its Exhibit.
	Annual Reports.....	Twentieth and Twenty-first Annual Reports of the Director for 1897 and 1898 (half year).

## NORTH DAKOTA STATION.

1897.		
December.....	Bulletin 30.....	Preliminary Report upon the Selection of Potatoes for Planting.
1898.		
March.....	Bulletin 31.....	Experiment Station Notes on Miscellaneous Subjects.
April.....	Bulletin 32.....	Chemical Studies.
August.....	Bulletin 33.....	Fattening Cattle.
February 1.....	Annual Report.....	Eighth Annual Report, 1897.

## OHIO STATION.

Date.	Publication.	Title.
1897.		
July .....	Bulletin 80.....	The Maintenance of Fertility. Field Experiments with Fertilizers in 1896.
July .....	Bulletin 81.....	The San José Scale in Ohio.
August .....	Bulletin 82.....	Field Experiments with Wheat.
September .....	Bulletin 83.....	A First Ohio Weed Manual.
July .....	Bulletin 84.....	Sixteenth Annual Report, 1897.
September .....	Bulletin 85.....	Strawberries.
October .....	Bulletin 86.....	The Story of the Lives of a Butterfly and a Moth.
November .....	Bulletin 87.....	The Periodical Cicada ( <i>Cicada septendecim</i> ), or so-called Seventeen-year Locust, in Ohio.
December .....	Bulletin 88.....	Cooperative Experiments made by the Ohio Agricultural Students' Union, in 1896.
December .....	Bulletin 89.....	Prevalent Diseases of Cucumbers, Melons, and Tomatoes.
1898.		
January .....	Bulletin 90.....	Sugar-beet Investigations in 1897.
January .....	Bulletin 91.....	The Lung and Stomach Worms of Sheep.
March .....	Bulletin 92.....	Preliminary Report upon Diseases of the Peach. Experiments in Spraying Peach Trees.
April .....	Bulletin 93.....	The Home Mixing of Fertilizers.
June .....	Bulletin 94.....	The Maintenance of Fertility.

## OKLAHOMA STATION.

1898.		
January .....	Bulletin 30.....	Oklahoma Weather and Crops for 1897.
February .....	Bulletin 31.....	Strawberries. Grapes. Stimulating and Holding Fruit Buds.
March .....	Bulletin 32.....	Practical Chemistry of Soils and Crops. A Study of the Castor-oil Plant.
March .....	Bulletin 33.....	Experiments with Field Crops, 1897.
May .....	Bulletin 34.....	The San José Scale in Oklahoma.
November .....	Annual Report .....	Annual Report, 1898.
November .....	Bulletin 35.....	Summary of Digestion Experiments.
November .....	Bulletin 36.....	Summary of Experiments with Corn and Wheat, 1898.

## OREGON STATION.

1896.		
October .....	Circular 1 .....	Dairying in Oregon.
1897.	Annual Report .....	Annual Report, 1897.
1898.		
January .....	Bulletin 48.....	Spraying.
January .....	Bulletin 49.....	Paris Green.
February .....	Bulletin 50.....	The Fertility of Oregon Soils.
March .....	Bulletin 51.....	Marketing Fruit.
April .....	Bulletin 52.....	The Cultivation of the Hazel Nut; also Notes on Varieties of Pears and Peaches.
April .....	Bulletin 53.....	Sugar Beets, 1897.
May .....	Bulletin 54.....	I. Notes on Flax and Hemp. II. Dairy Rations. III. Fresh v. Stripper Cow Butter. IV. Feeding Pumpkins to Pigs. V. Feeding Artichokes to Pigs.
November .....	Bulletin 55.....	Chemical Studies of Oregon Fruits. Cherries.

## PENNSYLVANIA STATION.

1896.		
	Annual Report .....	Annual Report, 1896.
1897.		
November .....	Bulletin 39.....	Wheat, Oats, and Potatoes.
December .....	Bulletin 40.....	The Sugar Beet in Pennsylvania.
December .....	Bulletin 41.....	Tests of Dairy Feeds.
1898.		
	Bulletin 42.....	The Maintenance Ration of Cattle.
July .....	Bulletin 43.....	Apples in Pennsylvania.

## RHODE ISLAND STATION.

1896.		
	Annual Report .....	Ninth Annual Report, 1896.
1897.		
August .....	Bulletin 46.....	Lime and Liming.
	Annual Report .....	Tenth Annual Report, 1897.
1898.		
July .....	Bulletin 47.....	Lime, Nitrogen, and Soda.
July .....	Bulletin 48.....	Analyses of Commercial Fertilizers.
November .....	Bulletin 49.....	Liming in Rhode Island. Legumes.

## SOUTH CAROLINA STATION.

Date.	Publication.	Title.
1897.	Annual Report .....	Tenth Annual Report, 1897.
1898.		
March .....	Bulletin 33.....	I. Tests of Dairy Methods and Apparatus. II. Comparative Tests of Butter Fat.
May .....	Bulletin 34.....	Sugar Beets.
June .....	Bulletin 35.....	Analyses of Commercial Fertilizers.
September.....	Bulletin 36.....	Diseases of Plants.
October.....	Bulletin 37.....	Wheat.

## SOUTH DAKOTA STATION.

1897.	Annual Report .....	Tenth Annual Report, 1897.
1898.		
January .....	Bulletin 56.....	Sugar Beets in South Dakota.
February .....	Bulletin 57.....	Four Injurious Insects.
March .....	Bulletin 58.....	Moisture Investigations for 1897.
April .....	Bulletin 59.....	Forage and Garden Crops in the James River Valley.
May .....	Bulletin 60.....	Millet.
	Annual Report .....	Eleventh Annual Report, 1898.

## TENNESSEE STATION.

1897.		
September .....	Bulletin, Vol. X, No. 3.	The Soils of Tennessee.
December .....	Bulletin, Vol. X, No. 4.	Scale Insects: San Jose and other Species.
	Annual Report .....	Tenth Annual Report, 1897.

## TEXAS STATION.

1897.		
March .....	Bulletin 42.....	The Irish Potato.
April .....	Bulletin 43.....	Report from Beeville Station: I. Soils. II. Climate. III. Water Supply. IV. Irrigation Equipment.
July .....	Bulletin 44.....	Paints and Painting Materials and Miscellaneous Analyses.
December.....	Bulletin 45.....	Cotton Experiments.
	Bulletin 46.....	Grasses and Forage Plants.

## UTAH STATION.

1897.		
December.....	Bulletin 51.....	Poultry Experiments.
	Annual Report .....	Eighth Annual Report, 1897.
1898.		
January .....	Bulletin 52.....	The Chemical Composition of Utah Soils.
February .....	Bulletin 53.....	Utah Sugar Beets, 1897.
February .....	Bulletin 54.....	Cattle Feeding.
March .....	Bulletin 55.....	Orchard Pests.
April .....	Bulletin 56.....	Field Experiments with Wheat, Oats, and Barley.
June.....	Bulletin 57.....	By-products of the Dairy.
July.....	Bulletin 58.....	The Chemical Life History of Lucern, Part II.

## VERMONT STATION.

1897.		
October.....	Bulletin 60.....	Insects of the Year.
November .....	Bulletin 61.....	Hardy Apples for Cold Climates.
1898.		
January .....	Bulletin 62.....	Home-grown Grapes in Vermont.
March .....	Bulletin 63.....	Analyses of Commercial Fertilizers.
April .....	Bulletin 64.....	Do.
May .....	Bulletin 65.....	Do.



## VIRGINIA STATION.

Date.	Publication.	Title.
1896.		
December .....	Bulletin 71.....	An Experiment in Generating Vinegar.
1897.		
January .....	Bulletin 72.....	Notes on Treatment of San José Scale, with Directions for Winter Work.
February .....	Bulletin 73.....	Preservation of Corn Stover.
March .....	Bulletin 74.....	I. Legislation for the Suppression of the San José Scale. II. Summer Treatment for the San José Scale.
April .....	Bulletin 75.....	Black Leg.
May .....	Bulletin 76.....	The Cattle Tick in Virginia.
	Annual Report .....	Annual Report, 1897.

## WASHINGTON STATION.

1896.		
December .....	Bulletin 29.....	Rational Stock Feeding.
	Annual Report .....	Sixth Annual Report, 1896.
1897.		
December .....	Bulletin 30.....	A Report on Damage to Fruit Trees Caused by the Severe Freeze of November 26-28, 1896.
December .....	Bulletin 31.....	Irrigation Experiments in Sugar-Beet Culture in the Yakima Valley.
1898.		
	Bulletin 32.....	I. Correction of Babcock Test for Cream. II. Effect of Richness of Cream on Acid Test.
May .....	Bulletin 33.....	Fiber Flax Investigations.
May .....	Bulletin 34.....	The Russian Thistle in Washington.
May .....	Bulletin 35.....	Miscellaneous Injurious Insects.
May .....	Bulletin 36.....	Insects Injurious to Currants and Gooseberries.

## WEST VIRGINIA STATION.

1898.		
January .....	Folio .....	Spray Calendar.
January .....	Bulletin 50.....	The Periodical Cicada in West Virginia.
January .....	Bulletin 51.....	Commercial Fertilizers.
March .....	Bulletin 52.....	Strawberries.
May 1.....	Special Bulletin .....	Fertilizers.

## WISCONSIN STATION.

1897.		
October .....	Bulletin 63.....	The Culture of Native Plums in the Northwest.
	Annual Report .....	Fourteenth Annual Report, 1897.
1898.		
January .....	Bulletin 64.....	Sugar Beet Investigations in Wisconsin during 1897.
February .....	Bulletin 65.....	A Bacterial Rot of Cabbage and Allied Plants.
April .....	Bulletin 66.....	Analyses of Licensed Commercial Fertilizers.
June .....	Bulletin 67.....	Factory Tests for Milk.
June .....	Bulletin 68.....	One Year's Work Done by a Sixteen-foot Geared Wind-mill.
September.....	Bulletin 69.....	Pasteurization as Applied to Butter Making.

## WYOMING STATION.

1897.		
November .....	Bulletin 34.....	Fruit Growing in Wyoming.
December .....	Bulletin 35.....	Mechanical Analysis and Water Content of Wyoming Soils.
1898.		
April .....	Bulletin 36.....	Wyoming Sugar Beets.
June .....	Bulletin 37.....	The Stooling of Grains.
September.....	Bulletin 38.....	Cultivated Shade and Forest Trees.
December .....	Bulletin 39.....	Alkali Studies, II.
	Annual Report .....	Eighth Annual Report, 1898.

## FEDERAL LEGISLATION AFFECTING AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS.

### ACT OF 1862 DONATING LANDS FOR AGRICULTURAL COLLEGES.

AN ACT donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That there be granted to the several States, for the purposes hereinafter mentioned, an amount of public land, to be apportioned to each State a quantity equal to thirty thousand acres for each Senator and Representative in Congress to which the States are respectively entitled by the apportionment under the census of eighteen hundred and sixty: *Provided,* That no mineral lands shall be selected or purchased under the provisions of this act.

SEC. 2. That the land aforesaid, after being surveyed, shall be apportioned to the several States in sections or subdivisions of sections, not less than one quarter of a section; and whenever there are public lands in a State subject to sale at private entry at one dollar and twenty-five cents per acre, the quantity to which said State shall be entitled shall be selected from such lands within the limits of such State, and the Secretary of the Interior is hereby directed to issue to each of the States in which there is not the quantity of public lands subject to sale at private entry at one dollar and twenty-five cents per acre, to which said State may be entitled under the provisions of this act, land scrip to the amount in acres for the deficiency of its distributive share; said scrip to be sold by said States and the proceeds thereof applied to the uses and purposes prescribed in this act and for no other use or purpose whatsoever: *Provided,* That in no case shall any State to which land scrip may thus be issued be allowed to locate the same within the limits of any other State, or of any Territory of the United States, but their assignees may thus locate said land scrip upon any of the unappropriated lands of the United States subject to sale at private entry at one dollar and twenty-five cents, or less, per acre: *And provided further,* That not more than one million acres shall be located by such assignees in any one of the States: *And provided further,* That no such location shall be made before one year from the passage of this act.

SEC. 3. That all the expenses of management, superintendence, and taxes from date of selection of said lands, previous to their sales, and all expenses incurred in the management and disbursement of the moneys which may be received therefrom, shall be paid by the States to which they may belong, out of the treasury of said States, so that the entire proceeds of the sale of said lands shall be applied without any diminution whatever to the purposes hereinafter mentioned.

SEC. 4. That all moneys derived from the sale of the lands aforesaid by the States to which the lands are apportioned, and from the sales of land scrip hereinbefore provided for, shall be invested in stocks of the United States, or of the States, or some other safe stocks, yielding not less than five per centum upon the par value of said stocks; and that the moneys so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished (except so far as may be provided

in section fifth of this act), and the interest of which shall be inviolably appropriated, by each State which may take and claim the benefit of this act, to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.

SEC. 5. That the grant of land and land scrip hereby authorized shall be made on the following conditions, to which, as well as to the provisions hereinbefore contained, the previous assent of the several States shall be signified by legislative acts:

First. If any portion of the fund invested, as provided by the foregoing section, or any portion of the interest thereon, shall, by any action or contingency, be diminished or lost, it shall be replaced by the State to which it belongs, so that the capital of the fund shall remain forever undiminished; and the annual interest shall be regularly applied without diminution to the purposes mentioned in the fourth section of this act, except that a sum, not exceeding ten per centum upon the amount received by any State under the provisions of this act, may be expended for the purchase of lands for sites or experimental farms, whenever authorized by the respective legislatures of said States.

Second. No portion of said fund, nor the interest thereon, shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repair of any building or buildings.

Third. Any State which may take and claim the benefit of the provisions of this act shall provide, within five years, at least not less than one college, as described in the fourth section of this act, or the grant to such State shall cease; and said State shall be bound to pay the United States the amount received of any lands previously sold, and that the title to purchasers under the State shall be valid.

Fourth. An annual report shall be made regarding the progress of each college, recording any improvements and experiments made, with their cost and results and such other matters, including State industrial and economical statistics, as may be supposed useful, one copy of which shall be transmitted by mail free, by each, to all the other colleges which may be endowed under the provisions of this act, and also one copy to the Secretary of the Interior.

Fifth. When lands shall be selected from those which have been raised to double the minimum price, in consequence of railroad grants, they shall be computed to the States at the maximum price and the number of acres proportionately diminished.

Sixth. No State while in a condition of rebellion or insurrection against the Government of the United States shall be entitled to the benefit of this act.

Seventh. No State shall be entitled to the benefits of this act unless it shall express its acceptance thereof by its legislature within two years from the date of its approval by the President.

SEC. 6. That land scrip issued under the provisions of this act shall not be subject to location until after the first day of January, one thousand eight hundred and sixty-three.

SEC. 7. That the land officers shall receive the same fees for locating land scrip issued under the provisions of this act as is now allowed for the location of military bounty land warrants under existing laws: *Provided*, Their maximum compensation shall not be thereby increased.

SEC. 8. That the governors of the several States to which scrip shall be issued under this act shall be required to report annually to Congress all sales made of such scrip until the whole shall be disposed of, the amount received for the same, and what appropriation has been made of the proceeds.

Approved, July 2, 1862.

## ACT OF 1887 ESTABLISHING AGRICULTURAL EXPERIMENT STATIONS.

AN ACT to establish agricultural experiment stations in connection with the colleges established in the several States under the provisions of an act approved July second, eighteen hundred and sixty-two, and the acts supplementary thereto.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That in order to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science, there shall be established, under direction of the college or colleges or agricultural department of colleges in each State or Territory established, or which may hereafter be established, in accordance with the provisions of an act approved July second, eighteen hundred and sixty-two, entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts," or any of the supplements to said act, a department to be known and designated as an "agricultural experiment station:" *Provided,* That in any State or Territory in which two such colleges have been or may be so established the appropriation hereinafter made to such State or Territory shall be equally divided between such colleges, unless the legislature of such State or Territory shall otherwise direct.

SEC. 2. That it shall be the object and duty of said experiment stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective States or Territories.

SEC. 3. That in order to secure, as far as practicable, uniformity of methods and results in the work of said stations, it shall be the duty of the United States Commissioner of Agriculture to furnish forms, as far as practicable, for the tabulation of results of investigation or experiments; to indicate from time to time such lines of inquiry as to him shall seem most important; and, in general, to furnish such advice and assistance as will best promote the purpose of this act. It shall be the duty of each of said stations annually, on or before the first day of February, to make to the governor of the State or Territory in which it is located a full and detailed report of its operations, including a statement of receipts and expenditures, a copy of which report shall be sent to each of said stations, to the said Commissioner of Agriculture, and to the Secretary of the Treasury of the United States.

SEC. 4. That bulletins or reports of progress shall be published at said stations at least once in three months, one copy of which shall be sent to each newspaper in the States or Territories in which they are respectively located, and to such individuals actually engaged in farming as may request the same and as far as the means of the station will permit. Such bulletins or reports and the annual reports of said stations shall be transmitted in the mails of the United States free of charge for postage, under such regulations as the Postmaster-General may from time to time prescribe.

SEC. 5. That for the purpose of paying the necessary expenses of conducting investigations and experiments and printing and distributing the results as hereinbefore prescribed, the sum of fifteen thousand dollars per annum is hereby appropriated to each State, to be specially provided for by Congress in the appropriations from year



to year, and to each Territory entitled under the provisions of section eight of this act, out of any money in the Treasury proceeding from the sales of public lands, to be paid in equal quarterly payments on the first day of January, April, July, and October in each year, to the treasurer or other officer duly appointed by the governing boards of said colleges to receive the same, the first payment to be made on the first day of October, eighteen hundred and eighty-seven: *Provided, however,* That out of the first annual appropriation so received by any station an amount not exceeding one-fifth may be expended in the erection, enlargement, or repair of a building or buildings necessary for carrying on the work of such station; and thereafter an amount not exceeding five per centum of such annual appropriation may be so expended.

SEC. 6. That whenever it shall appear to the Secretary of the Treasury from the annual statement of receipts and expenditures of any of said stations that a portion of the preceding annual appropriation remains unexpended, such amount shall be deducted from the next succeeding annual appropriation to such station, in order that the amount of money appropriated to any station shall not exceed the amount actually and necessarily required for its maintenance and support.

SEC. 7. That nothing in this act shall be construed to impair or modify the legal relation existing between any of the said colleges and the government of the States or Territories in which they are respectively located.

SEC. 8. That in States having colleges entitled under this section to the benefits of this act and having also agricultural experiment stations established by law separate from said colleges, such State shall be authorized to apply such benefits to experiments at stations so established by such States; and in case any State shall have established under the provisions of said act of July second, aforesaid, an agricultural department or experimental station, in connection with any university, college, or institution not distinctively an agricultural college or school, and such State shall have established or shall hereafter establish a separate agricultural college or school, which shall have connected therewith an experimental farm or station, the legislature of such State may apply in whole or in part the appropriation by this act made to such separate agricultural college or school, and no legislature shall by contract, express or implied, disable itself from so doing.

SEC. 9. That the grants of moneys authorized by this act are made subject to the legislative assent of the several States and Territories to the purposes of said grants: *Provided,* That payment of such installments of the appropriation herein made as shall become due to any State before the adjournment of the regular session of its legislature meeting next after the passage of this act shall be made upon the assent of the governor thereof duly certified to the Secretary of the Treasury.

SEC. 10. Nothing in this act shall be held or construed as binding the United States to continue any payments from the Treasury to any or all the States or institutions mentioned in this act, but Congress may at any time amend, suspend, or repeal any or all the provisions of this act.

Approved, March 2, 1887.

#### ACT OF 1890 FOR THE FURTHER ENDOWMENT OF AGRICULTURAL COLLEGES.

AN ACT to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of an act of Congress approved July second, eighteen hundred and sixty-two.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That there shall be, and hereby is, annually appropriated, out of any money in the Treasury not otherwise appropriated, arising from the sales of public lands, to be paid as hereinafter provided, to each State and Territory for the more complete endowment and maintenance of colleges for the benefit of agriculture and the mechanic arts now established, or which may be hereafter established,

in accordance with an act of Congress approved July second, eighteen hundred and sixty-two, the sum of fifteen thousand dollars for the year ending June thirtieth, eighteen hundred and ninety, and an annual increase of the amount of such appropriation thereafter for ten years by an additional sum of one thousand dollars over the preceding year, and the annual amount to be paid thereafter to each State and Territory shall be twenty-five thousand dollars, to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction: *Provided*, That no money shall be paid out under this act to any State or Territory for the support and maintenance of a college where a distinction of race or color is made in the admission of students, but the establishment and maintenance of such college separately for white and colored students shall be held to be a compliance with the provisions of this act if the funds received in such State or Territory be equitably divided as hereinafter set forth: *Provided*, That in any State in which there has been one college established in pursuance of the act of July second, eighteen hundred and sixty-two, and also in which an educational institution of like character has been established, or may be hereafter established, and is now aided by such State from its own revenue, for the education of colored students in agriculture and the mechanic arts, however named or styled, or whether or not it has received money heretofore under the act to which this act is an amendment, the legislature of such State may propose and report to the Secretary of the Interior a just and equitable division of the fund to be received under this act, between one college for white students and one institution for colored students, established as aforesaid, which shall be divided into two parts, and paid accordingly, and thereupon such institution for colored students shall be entitled to the benefits of this act and subject to its provisions, as much as it would have been if it had been included under the act of eighteen hundred and sixty-two, and the fulfillment of the foregoing provisions shall be taken as a compliance with the provisions in reference to separate colleges for white and colored students.

SEC. 2. That the sums hereby appropriated to the States and Territories for the further endowment and support of colleges shall be annually paid on or before the thirty-first day of July of each year, by the Secretary of the Treasury, upon the warrant of the Secretary of the Interior, out of the Treasury of the United States, to the State or Territorial treasurer, or to such officer as shall be designated by the laws of such State or Territory to receive the same, who shall, upon the order of the trustees of the college, or the institution for colored students, immediately pay over said sums to the treasurers of the respective colleges or other institutions entitled to receive the same, and such treasurers shall be required to report to the Secretary of Agriculture and to the Secretary of the Interior, on or before the first day of September of each year, a detailed statement of the amount so received and of its disbursement. The grants of moneys authorized by this act are made subject to the legislative assent of the several States and Territories to the purpose of said grants: *Provided*, That payments of such installments of the appropriation herein made as shall become due to any State before the adjournment of the regular session of legislature meeting next after the passage of this act shall be made upon the assent of the governor thereof, duly certified by the Secretary of the Treasury.

SEC. 3. That if any portion of the moneys received by the designated officer of the State or Territory for the further and more complete endowment, support, and maintenance of colleges, or of institutions for colored students, as provided in this act, shall, by any action or contingency, be diminished or lost, or be misapplied, it shall be replaced by the State or Territory to which it belongs, and until so replaced no subsequent appropriation shall be apportioned or paid to such State or Territory; and no portion of said moneys shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repair of any building or

buildings. An annual report by the president of each of said colleges shall be made to the Secretary of Agriculture, as well as to the Secretary of the Interior, regarding the condition and progress of each college, including statistical information in relation to its receipts and expenditures, its library, the number of its students and professors, and also as to any improvements and experiments made under the direction of any experiment stations attached to said colleges, with their costs and results, and such other industrial and economical statistics as may be regarded as useful, one copy of which shall be transmitted by mail free to all other colleges further endowed under this act.

SEC. 4. That on or before the first day of July in each year, after the passage of this act, the Secretary of the Interior shall ascertain and certify to the Secretary of the Treasury as to each State and Territory whether it is entitled to receive its share of the annual appropriation for colleges, or of institutions for colored students, under this act, and the amount which thereupon each is entitled, respectively, to receive. If the Secretary of the Interior shall withhold a certificate from any State or Territory of its appropriation the facts and reasons therefor shall be reported to the President, and the amount involved shall be kept separate in the Treasury until the close of the next Congress, in order that the State or Territory may, if it should so desire, appeal to Congress from the determination of the Secretary of the Interior. If the next Congress shall not direct such sum to be paid it shall be covered into the Treasury. And the Secretary of the Interior is hereby charged with the proper administration of this law.

SEC. 5. That the Secretary of the Interior shall annually report to Congress the disbursements which have been made in all the States and Territories, and also whether the appropriation of any State or Territory has been withheld, and if so, the reasons therefor.

SEC. 6. Congress may at any time amend, suspend, or repeal any or all of the provisions of this act.

Approved, August 30, 1890.

*EXTRACTS FROM AN ACT MAKING APPROPRIATIONS FOR THE DEPARTMENT OF AGRICULTURE FOR THE FISCAL YEAR ENDING JUNE THIRTIETH, EIGHTEEN HUNDRED AND NINETY-NINE.*

AGRICULTURAL EXPERIMENT STATIONS, OFFICE OF EXPERIMENT STATIONS: To carry into effect the provisions of an act approved March second, eighteen hundred and eighty-seven, entitled "An act to establish agricultural experiment stations in connection with the colleges established in the several States under the provisions of an act approved July second, eighteen hundred and sixty-two, and of the acts supplementary thereto," and to enforce the execution thereof, seven hundred and sixty thousand dollars, thirty thousand dollars of which sum shall be payable upon the order of the Secretary of Agriculture to enable him to carry out the provisions of section three of the said act of March second, eighteen hundred and eighty-seven, and ten thousand dollars of which sum may be expended by the Secretary of Agriculture to investigate and report to Congress upon the agricultural resources and capabilities of Alaska, with special reference to the desirability and feasibility of the establishment of agricultural experiment stations in said Territory, as has been done in other States and Territories, and the selection of suitable locations for such stations; and the Secretary of Agriculture shall prescribe the form of the annual financial statement required by section three of said act of March second, eighteen hundred and eighty-seven, shall ascertain whether the expenditures under the appropriation hereby made are in accordance with the provisions of the said act, and shall make report thereon to Congress; and the Secretary of Agriculture is hereby authorized to employ such assistants, clerks, and other persons as he may deem necessary, and to incur such other expenses for office fixtures and supplies, stationery, traveling, freight and express charges, illustration and publication of the Experi-



ment Station Record, bulletins, and reports, as he may find essential in carrying out the objects of the above acts; and the sums apportioned to the several States shall be paid quarterly in advance. And the Secretary of Agriculture is hereby authorized to furnish to such institutions or individuals as may care to buy it copies of the card index of agricultural literature prepared by the Office of Experiment Stations, and charge for the same a price covering the additional expense involved in the preparation of these copies: and he is hereby authorized to apply the moneys received toward the expense of the preparation of the index.

**IRRIGATION INFORMATION:** For the purpose of collecting from agricultural colleges, agricultural experiment stations, and other sources, including the employment of practical agents, valuable information and data on the subject of irrigation, and publishing the same in bulletin form, ten thousand dollars, or so much thereof as may be necessary.

**NUTRITION INVESTIGATIONS:** To enable the Secretary of Agriculture to investigate and report upon the nutritive value of the various articles and commodities used for human food, with special suggestions of full, wholesome, and edible rations less wasteful and more economical than those in common use, fifteen thousand dollars; and the agricultural experiment stations are hereby authorized to cooperate with the Secretary of Agriculture in carrying out said investigations in such manner and to such extent as may be warranted by a due regard to the varying conditions and needs of the respective States and Territories, and as may be mutually agreed upon; and the Secretary of Agriculture is hereby authorized to require said stations to report to him the results of any such investigations which they may carry out, whether in cooperation with said Secretary of Agriculture or otherwise.

**PUBLIC-ROAD INQUIRIES:** To enable the Secretary of Agriculture to make inquiries in regard to the system of road management throughout the United States; to make investigations in regard to the best methods of road making, and the best kind of road-making materials in the several States; for labor, traveling, and other necessary expenses, and for preparing and publishing bulletins and reports on this subject for distribution, and to enable him to assist the agricultural colleges and experiment stations in disseminating information on this subject, eight thousand dollars, of which sum one thousand dollars shall be immediately available.

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## REGULATIONS OF THE POST-OFFICE DEPARTMENT FOR THE FREE TRANSMISSION IN THE MAILS OF THE BULLETINS AND REPORTS OF AGRICULTURAL EXPERIMENT STATIONS UNDER THE ACT OF CONGRESS OF MARCH 2, 1887.

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Section 372 of the Postal Laws and Regulations of the United States reads as follows: Regulations for free transmission of bulletins and reports [under the act of Congress of March 2, 1887], are prescribed as follows:

(1) Any claimant of the privilege must apply for authority to exercise it to the Postmaster-General, stating the date of the establishment of such station, its proper name or designation, its official organization, and the names of its officers; the name of the university, college, school, or institution to which it is attached, if any, the legislation of the State or Territory providing for its establishment, and any other granting it the benefits of the provision made by Congress as aforesaid (accompanied by a copy of the act or acts), and whether any other such station in the same State or Territory is considered, or claims to be, also entitled to the privilege; and also the



place of its location and the name of the post-office where the bulletins and reports will be mailed. The application must be signed by the officer in charge of the station.

(2) If such application be allowed after examination by the Department, the postmaster at the proper office will be instructed to admit such bulletins and reports to the mails in compliance with these regulations, and the officer in charge of the station will be notified thereof.

(3) Only such bulletins or reports as shall have been issued after the station became entitled to the benefits of the act can be transmitted free, and such bulletins or reports may be inclosed in envelopes or wrappers, sealed or unsealed. On the exterior of every envelope, wrapper, or package must be written or printed the name of the station and place of its location, the designation of the inclosed bulletin or report, and the word "Free" over the signature or facsimile thereof of the officer in charge of the station, to be affixed by himself or by someone duly deputed by him for that purpose. There may also be written or printed upon the envelope or wrapper a request that the postmaster at the office of delivery will notify the mailing station of the change of address of the addressee, or other reason for inability to deliver the same, and upon a bulk package a request to the postmaster to open and distribute the "franked" matter therein, in accordance with the address thereon.

Bulletins published by the United States Department of Agriculture and analogous to those of the station, and entitled to be mailed free under the penalty envelope of that Department, may also be adopted and mailed by the several stations, with their own publications, under the same regulations, and any bulletins or reports mailable free by any agricultural experiment station under these regulations may be so mailed by any other station having free mailing authority.

If such station's annual reports be printed by State authority, and consist in part of matter relating to the land-grant college to which such station is attached, then said report may be mailed free entire by the director of the station; provided, in his judgment, the whole consists of useful information of an agricultural character.

(4) The bulletins may be mailed to the stations, newspapers, or persons to whom they are by the foregoing act authorized to be sent, and the annual reports to any address within the United States, Canada, Mexico, or Hawaiian Kingdom (Sandwich Islands), but not to other foreign countries, free of postage.

Among other rulings on matters of detail the following are the most important:

"In sending out bulletins from an agricultural experiment station it is permissible to inclose postal cards to enable correspondents of the station to acknowledge the receipt of its publications and to request their continuous transmission.

"Copies of the reports or bulletins of the agricultural experiment stations, which are purchased, paid or subscribed for, or otherwise disposed of for gain, when sent in the mails, are not entitled to free carriage under the 'frank' of the director of the station."

Station bulletins and reports consisting of typewritten matter duplicated on a mimeograph or other duplicating machine "retain their character as free matter when properly franked by the director of the station."

Station bulletins and reports printed in connection with the reports of State boards of agriculture or other State boards, commissioners, or officers can not be sent free through the mails under the frank of the director of the station.

The catalogue of the college of which the station is a department can not be sent free through the mails under the frank of the director of the station, whether said catalogue is published separately or is bound together with a station publication.

## RULINGS OF THE TREASURY DEPARTMENT AS TO THE CONSTRUCTION OF THE ACT OF CONGRESS OF MARCH 2, 1887, ESTABLISHING AGRICULTURAL EXPERIMENT STATIONS.

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From copies of letters addressed to the Secretary of the Treasury and others by the First Comptroller of the Treasury, relating to the construction of the act of Congress of March 2, 1887, and acts supplementary thereto, the following digest has been prepared for the use of the stations. The sections are those of the act, the dates those of the decisions by the Comptroller:

### *Section 3—January 30, 1888.*

That the annual financial statement of the stations, with vouchers, should not be sent to the Treasury Department, but that a copy simply of the report that is made to the governor is to be sent to the Secretary of the Treasury.

### *Section 3—January 31, 1888.*

First. That the Treasury Department will not require officers of experiment stations to do or perform anything not specifically required by said bill.

Second. That the Secretary of the Treasury is not required to take a bond of the officers of said stations for the money paid over under the provisions of said act.

Third. That no reports will be required from the stations directly to the Secretary of the Treasury; but the governor of the State must send to the Secretary of the Treasury a copy of the report made to him by the colleges or stations.

### *Section 4—December 16, 1895.*

The Solicitor of the Treasury writes: "I am of the opinion that there is no authority for an agricultural experiment station to sell its bulletins outside of the State or Territory. Congress appropriates for the publication and free distribution of the bulletins, and neither expressly or by necessary implication authorizes their sale."

### *Section 5—March 4, 1887.*

"Congress only intended by the expression 'the sum of fifteen thousand dollars is hereby appropriated to each State' to fix the amount that could be specially provided for by Congress in appropriations from year to year. Hence I conclude that section 5 does not make an appropriation, but that the same must be specially provided for by Congress."

### *Sections 5 and 6—March 10, 1888.*

- (1) The appropriations are intended for the fiscal year and not the calendar year.
- (2) The first annual report should be made on or before the 1st day of February, 1889, and said report should include simply the operations of the preceding fiscal year, not down to and including December 31, but up to and including June 30, 1888.
- (3) The balance unexpended at the end of the fiscal year, the 30th of June preceding the report, must be accounted for in the report.
- (4) The one-fifth proviso for building in section 5 can be made out of the first annual appropriation, to wit, that which commences on the 1st day of July, 1887, and terminates on the 30th of June, 1888.
- (5) The intention of Congress was to make quarterly payments, not in advance, but at the end of each quarter.

*Section 5, proviso—March 22, 1888.*

"I have been informed that there is no farm connected with the agricultural college in Delaware. The act provides that one-fifth of the amount appropriated can be expended in the creation, enlargement, or repair of a building or buildings for carrying on the work of the station receiving the appropriation. I am in doubt whether, with this qualification, out of the balance of the appropriation a farm could either be purchased or rented. Another question in my mind is as to the competency of the legislature which was in session at the date of the passage of the act to accept, as it assumed to do, of the provisions of the act, the ninth section of which provides that 'payment of such installments of the appropriation herein made as shall become due to any State before the adjournment of the regular session of its legislature meeting next after the passage of this act shall be made upon the assent of the governor thereof duly certified to the Secretary of the Treasury.'"

*Section 5, proviso—February 3, 1893.*

"It was held by my predecessor that the fund provided by the act of March 2, 1887, should not be used for the purchase or rent of land. In this opinion I am inclined to concur, for though there is no express prohibition, the whole tenor of the restrictive clauses as to lands and buildings, not only in this act, but in the cognate acts of July 2, 1862, and August 30, 1890, would seem to support it."

*Section 6—April 24, 1888.*

At the end of the present fiscal year, to wit, June 30, any portion of the \$15,000 which shall have been received, up to and including the payment made on the 1st day of July, which is unexpended, or which may not be necessary to pay claims under contracts made for the benefit of said agricultural station, must be deducted from the next annual appropriation, as specified in said sixth section.

*Section 6—August 2, 1888.*

The fiscal year commences on the 1st day of July, corresponding with the fiscal year of the Government.

An agricultural station entitled to the benefits of said appropriations made by Congress can anticipate the payment to be made July 1, and make contracts of purchases prior to that time, if it shall be necessary to carry on the work of the station. Of course, no portion of said appropriations paid in quarterly installments can be drawn from the Treasury unless needed for the purposes indicated in the act; and so much of what is so drawn as may not have been expended within the year must be accounted for as part of the appropriation for the following year.

*Section 8—January 30, 1888.*

The State of New York ought to designate whether to the college or to the station, or to both, it desires the appropriation to be applied. The eighth section of the act seems to authorize the State to apply such benefits to experimental stations it may have established as it desires.

Where there are no experimental stations connected with the colleges, the legislatures of such States must connect the agricultural experiment station with the colleges already established under the act of July 2, 1862; there is no authority in the act authorizing the establishment of agricultural experiment stations independent of said colleges.

The act contemplates that where stations have already been established disconnected from the colleges, the legislatures of such States may make such provisions in regard thereto as they may deem proper; but it does not authorize the establishment of stations except in connection with the colleges that were at that time or might thereafter be established under the act of July 2, 1862.



*Section 8—February 14, 1888.*

Where there is an agricultural college or station which may have been established by State authority, and is maintained by the State, the eighth section of the above act would authorize the State to designate the station to which it desired the appropriation to be applied, whether to one or more, or all, and the Secretary of the Treasury should make the payment under the appropriation to whichever one the State might designate.

*Sections 1 and 8—February 15, 1888.*

(1) When an agricultural college or station has been established under the act of July 2, 1862, each college is entitled to the benefits of the provisions of said act (i. e., of March 2, 1887).

(2) In a State where an agricultural college has been established under the act of July 2, 1862, and agricultural stations have also been established, either under the act of July 2, 1862, or by State authority, before March 2, 1887, the legislature of such State shall determine which one of said institutions, or how many of them, shall receive the benefits of the act of March 2, 1887.

(3) If the legislature of any State in which an agricultural college has been established under the act of July 2, 1862, desires to establish an agricultural station which shall be entitled to the benefits of said act, it must establish such station in connection with said college.

*Proviso to sections 1 and 8—December 7, 1888.*

It is within the power of the legislature of any State that has accepted the provisions of said act of March 2, 1887, to dispose of the amount appropriated by Congress for said station to either one or all of the agricultural colleges or stations which may have been established in said State by virtue of either the provisions of the act of July 2, 1862, or the provisions of said eighth section of the act of March 2, 1887.

The whole responsibility rests upon the State legislature as to how the fund appropriated by Congress shall be distributed among these various institutions of the State, provided there is one or more agricultural colleges with which an agricultural station is connected, or one or more agricultural stations.

*Section 8—January 28, 1889.*

The act of the State of Georgia in authorizing the governor to receive the fund to which the State may be entitled under the act of March 2, 1887, is not in conflict with any of the provisions of said act. If a State has established an agricultural college or station under the act of July 2, 1862, or if it has established an agricultural station in connection with said college, as provided in the eighth section of the act of March 2, 1887, the legislature can authorize some person or persons to receive the money donated by the Government and direct its application in such way and manner as it seems best to carry out the objects and purposes of said acts of Congress to either the colleges or the station, or to both.

*Section 9—February 4, 1888.*

It appears by the statement of Representative Blount that there was a session of the legislature of the State of Georgia after the passage of the act and before the first payment became due, October 1, 1887, and which did not adjourn until after that time. That being the case, under the proviso of the section, the governor of the State can not assent to that payment, which was to be made October 1, 1887. The legislature having adjourned before the second payment became due, without accepting the provisions of the bill, no further payment can be made to said State until the legislature thereof shall have accepted the provisions of the bill. You will observe the language of the proviso, "that payment of the installments of



the appropriation herein made as shall become due to any State before the adjournment of the regular session of its legislature," applies, certainly, only to such installments as become due before the final adjournment. The idea seems to be to give the legislature the full time before it adjourns to accept the provisions of the bill or not; but it is plain to my mind that only such payments as become due before the adjournment of the legislature can be accepted by the governor of the State.

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## RULINGS OF THE DEPARTMENT OF AGRICULTURE ON THE WORK AND EXPENDITURES OF AGRICULTURAL EXPERIMENT STATIONS.<sup>1</sup>

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In connection with examinations of the work and expenditures of the agricultural experiment stations established in accordance with the act of Congress of March 2, 1887, under authority given to the Secretary of Agriculture by Congress, questions have arisen which have seemed to make it advisable to formulate the views of this Department on certain matters affecting the management of the stations under that act. The statements given below have therefore been prepared, to cover the points which seem to require special attention:

### EXPENDITURES FOR PERMANENT SUBSTATIONS.

This Department holds that the expenditure of funds appropriated in accordance with the provisions of the act of Congress of March 2, 1887, for the maintenance of permanent substations is contrary to the spirit and intent of said act. The act provides for an experiment station in each State and Territory, which, except in cases specified in the act, is to be a department of the college established under the act of Congress of July 2, 1862. The objects of the stations, as defined in the first-mentioned act, are evidently of such a character as to necessitate the services of scientific and expert workers. Most of the lines of investigation named in the act are general, rather than local, and involve scientific equipment and work. It is obviously the intent that the stations established under this act shall carry on important investigations which shall be of general benefit to the agriculture of the several States and Territories. The sum of \$15,000, which is annually appropriated by Congress under this act for each station, is only sufficient to carry out a limited number of investigations of the kinds contemplated by the act.

As the work of the stations in the different States has developed, it has been found necessary to limit, rather than expand, the lines of work of the individual stations. Thorough work in a few lines has been found much more effective and productive of more useful results than small investigations in numerous lines. When we consider the nature of the investigations, the amount of money provided for the work of each station, and the fact that the act expressly provides for only a single station in connection with each college, it becomes very clear that expenditures such as are necessary to effectively maintain permanent substations ought not to be made from the funds granted by Congress to the States and Territories for experiment stations. The maintenance of permanent substations as a rule involves the erection of buildings and the making of other permanent improvements. The sums of money which can be expended for permanent improvements under the act of Congress aforesaid are so small that it is clear they were not intended to meet the needs of more than one station in each State and Territory.

When the legislature of a State or Territory has given its assent to the provisions of the act of Congress of March 2, 1887, and has designated the institution which

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<sup>1</sup> U. S. Dept. Agr., Office of Experiment Stations Circular 29.

shall receive the benefits of said act, it would seem to have exhausted its powers in the matter. The responsibility for the maintenance of an experiment station under said act devolves upon the governing board of the institution thus designated. If the legislature of the State or Territory sees fit to provide funds for the equipment and maintenance of other experiment stations and to put them under the control of the same governing board, well and good, but this does not in any way diminish the responsibility of the board to administer the funds granted by Congress in accordance with the provisions of said act.

The wisdom of Congress in limiting the number of stations to be established in each State and Territory under the aforesaid act has been clearly shown by the experience of the few States and Territories which have attempted the maintenance of substations with the funds granted under said act. The expense of maintaining substations has as a rule materially weakened the central station, and the investigations carried on at the substations have been superficial and temporary. It is granted that in many States and Territories more than one agricultural experiment station might do useful work, and in some States more than one station has already been successfully maintained; but in all these cases the State has given funds from its own treasury to supplement those given by Congress. It is also granted that experiment stations established under said act of Congress and having no other funds than those provided by that act will often need to carry on investigations in different localities in their respective States and Territories, but it is held that this should be done in such a way as will secure the thorough supervision of such investigations by the expert officers of the station and that arrangements for such experimental inquiries should not be of so permanent a character as to prevent the station from shifting its work from place to place as circumstances may require, nor involve the expenditure of funds in such amounts and in such ways as will weaken the work of the station as a whole.

As far as practicable, the cooperation of individuals and communities benefited by these special investigations should be sought, and if necessary the aid of the States invoked to carry on enterprises too great to be successfully conducted within the limits of the appropriation granted by Congress under the act aforesaid.

#### PURCHASE OR RENTAL OF LANDS FOR AGRICULTURAL EXPERIMENT STATIONS.

This Department holds that the purchase or rental of land by the experiment stations from the funds appropriated in accordance with the provisions of the act of Congress of March 2, 1887, is contrary to the spirit and intent of said act. The act provides for "paying the necessary expenses of conducting investigations and experiments and printing and distributing the results. \* \* \* *Provided, however,* That out of the first annual appropriation so received by any station an amount not exceeding one-fifth may be expended in the erection, enlargement, or repair of a building or buildings necessary for carrying on the work of such stations; and thereafter an amount not exceeding 5 per centum of such annual appropriation may be so expended." The only reference to land for the station in the act is in section 8, where State legislatures are authorized to apply appropriations made under said act to separate agricultural colleges or schools established by the State "which shall have connected therewith an experimental farm or station." The strict limitation of the amount provided for buildings and the absence of any provision for the purchase or rental of lands, when taken in connection with the statement in the eighth section, which treats the farm as in a sense a necessary adjunct of the educational institution to which the whole or a part of the funds appropriated in accordance with said act might in certain cases be devoted, point to the conclusion that it was expected that the institution of which the station is a department would supply the land needed for experimental purposes and that charges for the purchase or rental of land would not be made against the funds provided by Congress for the experiment station. This conclusion is reinforced by considerations of a wise and

economic policy in the management of agricultural experiment stations, especially as relating to cases in which it might be desirable for the station to have land for experimental purposes in different localities. The investigations carried on by the stations in such cases being for the direct benefit of agriculture in the localities where the work is done, it seems only reasonable that persons or communities whose interests will be advanced by the station work should contribute the use of the small tracts of land which will be required for experimental purposes. Experience shows that in most cases the stations have had no difficulty in securing such land as they needed, without expense, and it is believed that this may be done in every case without injuriously affecting the interests of the stations.

#### EXPENDITURES BY AGRICULTURAL EXPERIMENT STATIONS FOR CARRYING ON FARM OPERATIONS.

This Department holds that expenses incurred in conducting the operations of farms, whether the farms are connected with institutions established under the act of Congress of July 2, 1862, or not, are not a proper charge against the funds appropriated by Congress for agricultural experiment stations in accordance with the act of Congress of March 2, 1887, unless such operations definitely constitute a part of agricultural investigations or experiments planned and conducted in accordance with the terms of the act aforesaid under rules and regulations prescribed by the governing board of the station. The performance of ordinary farm operations by an experiment station does not constitute experimental work. Operations of this character by an experiment station should be confined to such as are a necessary part of experimental inquiries. Carrying on a farm for profit or as a model farm, or to secure funds which may be afterwards devoted to the erection of buildings for experiment station purposes, to the further development of experimental investigations, or to any other purpose however laudable and desirable, is not contemplated by the law as a part of the functions of an agricultural experiment station established under the act of Congress of March 2, 1887. Section 5 of that act plainly limits the expenditures of funds appropriated in accordance with said act to "the necessary expenses of conducting investigations and experiments and printing and distributing the results."

#### FUNDS ARISING FROM THE SALE OF FARM PRODUCTS OR OTHER PROPERTY OF AN AGRICULTURAL EXPERIMENT STATION.

This Department holds that moneys received from the sales of farm products or other property in the possession of an agricultural experiment station as the result of expenditures of funds received by the station in accordance with the act of Congress of March 2, 1887, rightfully belong to the experiment station as a department of the college or other institution with which it is connected, and may be expended in accordance with the laws or regulations governing the financial transactions of the governing board of the station, provided, however, that all expenses attending such sales, including those attending the delivery of the property into the possession of the purchaser, should be deducted from the gross receipts from the sales and should not be made a charge against the funds appropriated by Congress.

#### LIMIT OF EXPENDITURES OF EXPERIMENT STATIONS DURING ONE FISCAL YEAR.

This Department holds that expenses incurred by an agricultural experiment station in any one fiscal year to be paid from the funds provided under the act of Congress of March 2, 1887, should not exceed the amount appropriated to the station by Congress for that year, and especially that all personal services should be paid for out of the appropriation of the year in which they were performed, and that claims for compensation for such services can not properly be paid out of the appro-



priations for succeeding years. The several appropriations for experiment stations under the aforesaid act are for one year only, and officers of experiment stations have no authority to contract for expenditures beyond the year for which Congress has made appropriations.

This is plainly implied in the act aforesaid, inasmuch as section 6 provides that unexpended balances shall revert to the Treasury of the United States, "in order that the amount of money appropriated to any station shall not exceed the amount actually and necessarily required for its maintenance and support." The annual financial report rendered in the form prescribed by this Department should in every case include only the receipts and expenditures of the fiscal year for which the report is made.

#### EXPENDITURES BY AGRICULTURAL EXPERIMENT STATIONS FOR A WATER SYSTEM TO BE CHARGED UNDER "BUILDING AND REPAIRS."

This Department holds that expenditures by agricultural experiment stations from the funds appropriated in accordance with the act of Congress of March 2, 1887, for the construction of wells, cisterns, ponds, or other reservoirs for the storage of water, and for piping, and other materials for a system of storing and distributing water, are properly charged, under abstract 18 in the schedule for financial reports prescribed by this Department, as being for improvements on land which have hitherto been held to come under the head of "building and repairs." The fact that a water system may be a necessary adjunct of certain experimental inquiries does not affect the case, inasmuch as the limitations on expenditures for improvements contained in section 5 of the act of Congress of March 2, 1887, expressly stipulate that these improvements shall be such as are necessary for carrying on the work of the station.

#### EXPENDITURES BY AGRICULTURAL EXPERIMENT STATIONS FOR MEMBERSHIP IN AGRICULTURAL AND OTHER ORGANIZATIONS.

This Department holds that membership fees in associations and other organizations are not a proper charge against the funds appropriated by Congress in accordance with the act of March 2, 1887, except in the case of the Association of American Agricultural Colleges and Experiment Stations, which is held to be an essential part of the system of experiment stations established under said act.

#### THE BORROWING OF MONEY TO PAY THE EXPENSES OF AGRICULTURAL EXPERIMENT STATIONS.

This Department holds that experiment station officers have no authority to borrow money to be repaid out of appropriations made under the act of Congress of March 2, 1887, and that charges for interest can not properly be made against funds appropriated under that act.

A. C. TRUE, *Director.*

Approved:

J. STERLING MORTON, *Secretary.*

WASHINGTON, D: C., *March 10, 1896.*

#### THE USE OF EXPERIMENT STATION FUNDS FOR COLLEGE PURPOSES.

This Department holds that no portion of the funds appropriated by Congress in accordance with the act of March 2, 1887, can legally be used, either directly or indirectly, for paying the salaries or wages of professors, teachers, or other persons whose duties are confined to teaching, administration, or other work in connection with the courses of instruction given in the colleges with which the stations are con-



nected or in any other educational institution; nor should any other expenses connected with the work or facilities for instruction in school or college courses be paid from said fund. In case the same persons are employed in both the experiment station and the other departments of the college with which the station is connected a fair and equitable division of salaries or wages should be made, and in case of any other expenditures for the joint benefit of the experiment station and the other departments of the college the aforesaid funds should be charged with only a fair share of such expenditures.

Respectfully,

A. C. TRUE, *Director.*

Approved:

JAMES WILSON, *Secretary.*

WASHINGTON, D. C., *October 25, 1897.*

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